











# The Bulletin of the Amateur Entomologists' Society



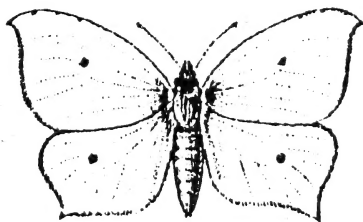
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Brian O.C. Gardiner, F.L.S., F.R.E.S.



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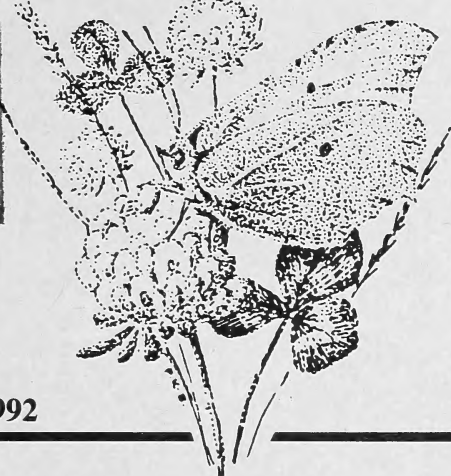
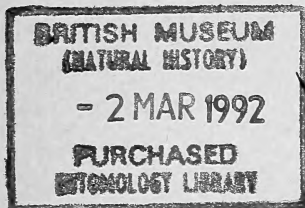
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# **The Bulletin of the Amateur Entomologists' Society**

EDITOR

BRIAN O. C. GARDINER, F.L.S., F.R.E.S.

# The Amateur Entomologists' Society

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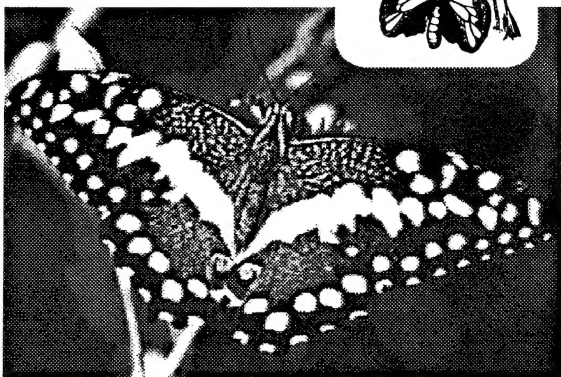
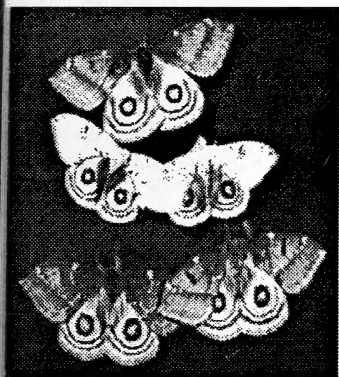
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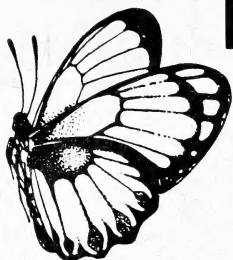
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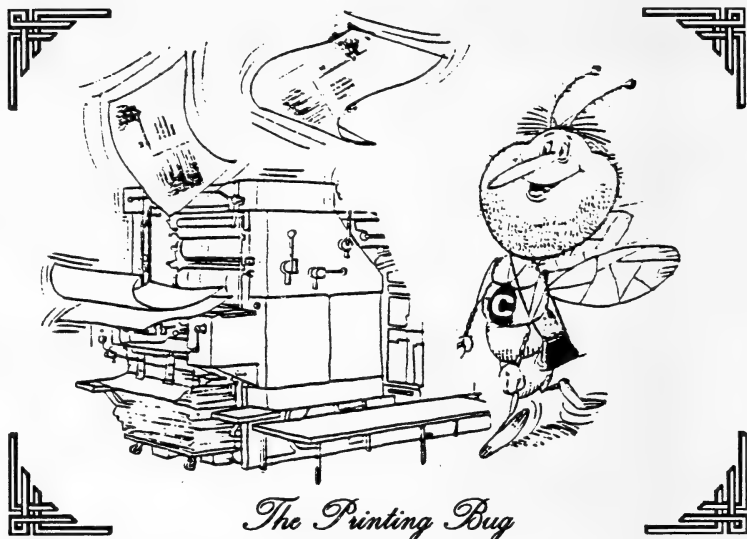
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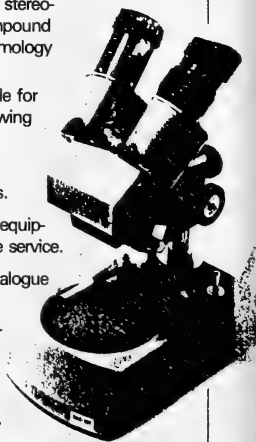
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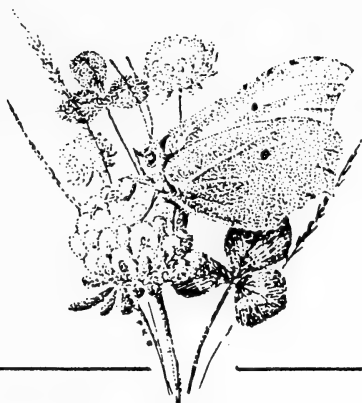
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## CRICKETS IN BRITAIN

by *E.C.M. Haes (5849)*

*6 Hatches Hill, Angarrack, Cornwall TR27 5HY*

There are four important groups of Orthoptera in the British Isles. These are grasshoppers (Acrididae); the easily overlooked ground-hoppers (Tetrigidae); bush-cricket (Tettigoniidae) and, subjects of these notes, crickets and mole-cricket (Gryllidae and Gryllotalpidae).

### 1. STATUS AND DISTRIBUTION

Cricket is familiar insect in a general way, but as British insects they are, with one exception, very local or rare members of our fauna. In fact, possibly only two of the five species now resident in these islands are genuinely native here and the most frequently encountered, the House-cricket, *Acheta domesticus*, is unquestionably alien, although it has been resident here, in heated premises and large rubbish dumps, for several centuries, perhaps since the Crusades. It is considered to be a native of much of North Africa and the Middle East.

During the 1950s and '60s, when chlorinated hydrocarbon type insecticides were used with little restraint, House-cricket populations were much reduced, although large, isolated colonies continued to thrive in municipal rubbish tips and similar places, sometimes being carried to new sites in dust carts. From the mid-1970s, when it was clear that such chemicals as DDT and related substances, were harmful to us as well as to insect "pests", the ritual saturation of dwelling places, dairies, hospitals, schools and hotels with such substances discontinued and less persistent insecticides used instead. As a consequence there is now a considerable insect fauna in urban premises again, including good populations of House-cricket. Although this cricket has reappeared in many districts in buildings, and clearly appreciates modern central heating and "junk" food facilities provided by late twentieth century

man in urban environments, it has practically lost the rubbish tip, as an outdoor alternative residence, since much domestic waste is now disposed of by other means.

As perhaps doubtful, if generous, compensation, live crickets have become a main ingredient in the menus of many kinds of now popular exotic pets, and are raised in large numbers for this purpose. Often some escape before being sent to the arena and are able to pair and set up home in districts far from where they originated. It may not be long before the insect is again as widespread as it was in the last century — not as “the cricket on the hearth”, certainly, but rather less romantically as the \*\*\*\* behind the pipes! It is unfortunate that the (to many of us) pleasant trilling of the House-cricket is a call of the night, which not all can sleep through easily.

Although essentially nocturnal, the House-cricket does chirp during the day, and is rarely completely inactive unless chilled, but is clearly most active at night. Its bulkier relative, the Field-cricket *Gryllus campestris*, probably never was common in Britain, as it is in France, and is now known from only two places in West Sussex and at several sites in Jersey, where it is apparently becoming threatened by the golfing “industry”. In England it is protected under Schedule 5 of The Wildlife and Countryside Act (1981), not that that might count for much should it be deemed in the national interest to construct a main road through either site. Nevertheless our surviving colonies should only be visited with the sanction of the owners and British Nature.

The Field-cricket has been reported from a number of unknown localities, during the last 25 years, and where investigated, the chirping colonies have turned out to be House-crickets, gone feral in fields and hedgebanks. This usually happens in very hot summers, when the House-cricket flies readily, often for a distance of a kilometre or more. Such outdoor colonies would be most unlikely to survive a winter under normal conditions in Britain. As, however, there is hope that wild Field-crickets could still exist undetected in warm, sheltered areas of short, grazed grass, in entomologically underworked localities, and as both species produce rather similar stridulations, any reasonable report would justify investigation.

Although very localised, the lively little Wood-cricket, *Nemobius sylvestris* is usually numerous where it occurs. In this country it is widespread, and abundant in the New Forest. There are also considerable populations in the Isle of Wight, north of the island’s chalk. In Dorset the New Forest population has crossed the county boundary in several places, but away from the Bournemouth area there is only a single 1951 record from Bere Wood, Bere Regis and despite considerable search it has not been rediscovered. In eastern Devon there are small but

long-known colonies, both in the wooded heathland around Woodbury and near Chudleigh, and at a recently discovered site in North Devon at King's Nympton. A substantial colony was discovered in the car park area at Wisley Gardens in Surrey, in 1966. This colony may have been destroyed by the recent enlargement of the car park, but fortunately the cricket is now known from another site in the district. The Wisley population was very probably brought in when a large consignment of azaleas was taken from Exbury in the New Forest, to the Royal Horticultural Society's garden, in the early 1960. Despite its unusual life-cycle (see below), eggs of the one generation and over-wintering nymphs of the other could easily be moved in a sufficiently large consignment of plants and become established in a new area with a suitable micro-climate. From accounts of its great rarity as a British insect early in the last century, its present disjointed distribution, and old reports from Cornwall and Derbyshire, it is possible that it was accidentally introduced to this country at the end of the eighteenth or early nineteenth century with large shipments of seedling trees from the Continent, which were being used for estate planting, which was then taking place on a very large scale.

In spite of its "double life-cycle" the Wood-cricket is easily reared and it might, in consequence, be considered worthwhile introducing artificially raised stocks to country parks and similar amenity areas, in the warmest districts for the pleasure provided by its delightful stridulation. Needless to say, such a project should only be considered in consultation with British Nature, appropriate County Trusts and natural history record centres. Then, if agreed, deliberately introduced populations of this insect would seem a most desirable addition to local faunas.

The Scaly cricket, *Pseudomogoplistes squamiger*, in Britain known from only one or two places on the west side of the causeway to Portland Bill in Dorset, where it was discovered in 1949, and despite sea floods, has persisted there to the present time. Elsewhere this small cricket seems to be restricted to isolated populations around the Mediterranean, southern Portugal, Madeira, and one of the Canary Islands. Its habitat is under rocks and rubble in very sheltered sites such as the shorelines of lagoons. This cricket is easily overlooked, since it is nocturnal, and being wingless, or equipped with any other visible means of stridulating, is undetectable by ear. In many ways its behaviour is more like that of a cockroach than a cricket, and in consequence it may be more numerous and widespread than is at present realised, although it seems improbable it will be found elsewhere in this country, and the few other likely sites, such as Slapton Ley in Devon have been checked with negative results on various occasions. The remote population in Dorset, close to Portland

Naval Base is probably the result of accidental introduction in sand of Mediterranean origin, during the second world war. Nevertheless it is of great interest that the cricket has survived here for half a century.

The Mole-cricket, *Gryllotalpa gryllotalpa*, is unquestionably native to Britain, but during the present century it has declined from being locally common to becoming a noteworthy rarity. Like the Field-cricket, it is now officially protected under Schedule 5 of the Wildlife and Countryside Act (1981). During the 1980s, specimen-backed records were for a pony field near Wareham in Dorset and a garden at Kingston-upon-Thames in Surrey, with circumstantial evidence for a colony by the Avon, near Pershore, until 1985. It continued to be reported as a minor horticultural pest in Vale, Guernsey up to 1988, but, by one account, was not found in 1990. There is little doubt that, in Britain, the Mole-cricket has suffered from the progressive and recently rapid destruction of wetlands, on which it is dependent in the wild. From time to time this impressive creature is reported from the vicinities of markets, shops and kitchens in urban districts, but these are specimens which have almost certainly been imported accidentally with vegetables from the Continent, where it is still widespread and common as far north as Denmark. A former habitat site in Wiltshire is shown in Fig. 3.

## 2. FUNDAMENTAL FEATURES

### (a) *Gryllidae*.

Head globular, with thread-like antennae, which reach back at least over the middle of the abdomen. Wings of male with conspicuous ridges for stridulation. Ovipositor, conspicuous from above and needle shaped, as distinct from the sword-like structure of female bush-cricket. Like bush-cricket, the ears are on the tibiae of the forelegs, but the feet of true crickets have three tarsal (foot) segments, as do grasshoppers; bush-cricket have four. Unlike bush-cricket and grasshoppers, true crickets are flat rather than ridged on the dorsal surface, and in this they resemble cockroaches.

### (b) *Gryllotalpidae*

Unmistakeable shape and remarkable forelegs. Ovipositor not visible. Antennae short.

## 3. FIELD DETAILS

### *House cricket*

A pale brown insect, with a mottled colour pattern. Length, as adult, after about 11 nymphal instars: 14 - 20mm. Fully winged, flying freely at 25°C or above. Stridulation of male, a trilling call, of fluctuating nature, from about 15°C. Life-cycle, continuous without diapause: white, 2mm,



eggs are laid in immediate substrate and, at around 20°C, hatch in about two weeks, nymphs reaching adulthood in from three to eight months, depending on mean temperature.

*Field-cricket* (Plate C, Fig. 2)

A burly, black cricket, orange on underside of hind leg, covered with minute but noticeable golden specks, and with a broad pale yellowish band across the base of the forewings when adult. Adults about 22mm in length, after 11 nymphal instars. Forewings fully developed but hindwings vestigial and the insect consequently flightless. Stridulation of male, a vigorous, far-carrying, morse-code-like trill, produced day and night in warm weather, from late May until about early July. There is a quite distinct, scratchy courtship "song". Life-cycle: a definite annual cycle; the white eggs, a hundred or so per female, are laid in soil, around the burrow entrance in late May and into June. Nymphs emerge in about three weeks and disperse into the surrounding turf, where they pass through nine or ten instars, and then, in autumn, each constructs a burrow of its own, upwards of 20cm long, with a near right-angled downwards bend near the entrance. Winter is passed in semi-hibernation in this individual burrow. About March the nymphs resume activity using the burrow as a home and leaving it only to feed on grass at night. The entrances to the burrows open horizontally onto a transverse platform, with a dung heap at the farthest end and a sunning area by the hole, down which the owner darts, head-first, at the slightest disturbance. The final nymphal instars take place at the individual burrows and at maturity receptive females leave home for good to join a chirping male at his burrow. However, all is not, by our standards, very blissful thereafter. Once mated the gravid female seems to evict the male, before laying her eggs in the vicinity, in late May and through June. Mature males are notoriously aggressive to each other, although this is probably an uncommon event in the wild, and some of the battle scars observed are caused by gravid females. Evicted males will, in the course of a few days, make and "chirp" from a new burrow. The Field-cricket is a most entertaining insect to study.

*Wood-cricket* (Plate C, Fig. 1)

Colour pattern is similar to that of the House-cricket, but this species is only about half the size of its domestic relative, and it is brachypterous and flightless. Length as adult, after eight nymphal instars, about 8 - 9mm. Stridulation of male is a delightful purring sound, faint to human ears, beyond a distance of about two metres, but often produced by many males in unison, so that the noise is noticeable and pervading. Wood-crickets live in deep leaf litter, in sunny clearings in old deciduous

woodland (usually with an understorey of holly) in warm districts in southern England. They are active day and night.

The life-cycle is a two year sequence, with an "even" and "odd" year generation, in which cross-breeding is practicably impossible, between the overlapping cycles. Eggs are laid in the leaf litter substratum in late summer and autumn and remain dormant until next June. The resulting nymphs pass through five or six moults and then over-winter, in a more or less active state, deep in the leaf mould, which seems to be their main source of food. The following spring they resume full activity, completing two or three further moults, to become adult about mid to late June, two years after hatching. Most adults die in their third winter but the occasional adult may survive into the following spring, although probably never living long enough to pair with the new adults of the succeeding generation.

### *Scaly cricket*

A small, wingless, dark grey-brown cricket, covered in tiny white scales. This species is wingless and produces no audible stridulation. Length, after an unknown number of nymphal instars, 10 - 13mm. Life-cycle, details unknown but probably annual. In the British population, adults have most often been found from the last week of September to the second week of October, and it is assumed that the 3mm, dull yellow eggs laid then remain dormant through the winter and hatch the following spring. It is possible that the eggs could remain dormant until perhaps the second spring after laying, as do those of most native bush-crickets.

### *Mole-cricket*

A chestnut-brown, downy insect with conspicuous forelegs, of a form and structure unique amongst British insects. Length of adults, after five of perhaps more instars, 40 - 50mm. Stridulation, a very pleasant and prolonged purring sound, from late spring to midsummer, at dusk and into the early part of the night. The males stridulate from a specially enlarged chamber, at just below ground level, in the shallowest part of a long meandering burrow, which gives the sound a distinctive muffled quality. A female, disturbed in her burrow, may produce a brief but quite loud buzz, even though lacking the specially developed veins which are present on the forewings of the male. Hindwings of both sexes are fully developed, and in hot weather the adults may launch into cumbersome and noisy flight, close to the ground. Perhaps receptive females may use flight to speed the journey to a stridulating male. As befits a wetland species, nymphs and adults swim well, when the dense hairs trap air and give the swimmers a silvery appearance. Most of the nymphal and adult life is spent below ground, to a depth of a metre or

more in cold or dry weather. The cricket uses its strong jaws as well as its specially adapted legs to burrow, and although assumed to feed mainly on earthworms and subterranean insects often damages plants by cutting roots that bar its progress. The life-cycle in northern Europe may cover three years. After mating, females hollow out a special chamber where, like a mother earwig, they brood their two hundred or more 3mm eggs — a phenomenon well described by Gilbert White. This maternal brooding is continued perhaps until the mother dies. Nymphs then disperse in the open and in autumn make their own little burrows, in which they pass the first winter without further development. Because of the protracted breeding season, nymphs an instar apart in age may enter the first winter, so that the older ones may become adults in the autumn before the second winter, while the younger pass this second winter as advanced nymphs and mature in the third year. Earlier maturing adults may also survive to breed a second time in their third year.



Fig. 3. Habitat site of Mole-cricket, *G. gryllotalpa*, near Landford, Wiltshire, photographed in 1987 by J.F. Burton.

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Now being remaindered at well below original price are the following books.

*The Story of Silk* by John Feltwell.

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For those who require them for the text rather than the quality of the originals, the Bloomsbury Books' editions of William Collins & Sons' *New Naturalist* series are now being offered at less than £3.00. Although they have been selling like hot cakes, *Jamaica and its butterflies* and *Aberrations of British butterflies* (see *Bulletin* 50: 232) may still be available.

The New Zealand Entomological Society has also sent us information that they have a number of books on the New Zealand Invertebrates for sale, some of which are on special offer. Anyone interested (and we have had members ask for information on the New Zealand fauna in the past) should contact them direct c/o DSIT Library, Mt Albert, Private Bag, Auckland, New Zealand (fax: 064-9-893-660).

## WASPS, A LOVE AND A HATE RELATIONSHIP

Congratulations to entomologist Jim Ryan whose hobby, as reported in a local Edmonton paper, takes the direction of rearing wasps and encouraging them to produce "insect art" which they do in the form of making fascinating multi-coloured nests. These are produced from the strips of coloured paper that Mr Ryan supplies them with as building material.

Bad cess to the Cambridge firm who last year advertised in the local paper that they would destroy for free any wasp nest reported to them within two miles of their premises. Not to be outdone Cambridge City Council later announced (after the season was over!) that they would no longer make a charge for destroying nests.

## CORRECTION OF ERROR — TOO MANY IRISH MOTHS

Dave Norris has written that in his article in the previous issue (Moths in Nun's Wood, Tralee, Ireland, *Bulletin* 50: 281) he unfortunately listed in error three moths in his records which did not in fact bear data labels for Nun's Wood and must therefore be deleted from the list. They are the Bordered gothic (*Heliophobus reticulata*), Flame wainscot (*Senta flammea*) and Silky wainscot (*Chilodes maritimus*). Readers are asked to strike these through in their copies of the *Bulletin*.

## GENERAL OBSERVATIONS ON RHOPALOCERA IN THE ARDECHE REGION OF SOUTHERN FRANCE DURING JUNE 1982

(Continued from Vol. 49, page 196)

by Nigel Gossling (5169)

"Idlewilde", Compass Lane, Robertsbridge, Sussex TN32 5SE.

### SATYRINAE

*Satyrus ferula* Fab. (Great sooty satyr)

The discovery of this species amongst the scrub and arid higher elevations above the gorge came as a complete surprise to me as this butterfly is usually on the wing in July and August.

The male imagines were easily seen as they patrolled over the dry slopes covered with coarse grasses and small shrubs because of their dominant black coloration and large size. The flight pattern tended to be weak and gusts of wind often suddenly deflected the flight path with irritating regularity! All imagines were found to be freshly emerged insects and in excellent condition which was a clear indication of recent appearance on the wing.

A single female imago was disturbed from waste-ground at the camp-site entrance in the early morning of 13th June; this proved to be a fine freshly emerged specimen displaying the female's ochreous coloration on the upper-sides of both fore and hindwings with the two prominent white-centred black ocelli surrounded with yellowish suffusion on the forewings.

*Brintesia circe* Fab. (Great banded grayling)

This resplendent butterfly was also encountered in limited numbers amongst trees and long grass close to the riverside at the base of the gorge; once again I was surprised to find this species on the wing so early in the season. All imagines were male and freshly emerged by reason of their fine dark brown coloration and display of the striking broad white postdiscal bands on the uppersides of both fore and hindwings when in flight.

Unless disturbed suddenly, the imago remained cleverly concealed at rest on tree trunks two or three metres above ground level for extended periods and was therefore difficult to detect. The mottled grey patterned hindwing undersides provided this species with excellent camouflage and protection whilst at rest.

*Pyronia bathseba pardilloi* Sagarra (Spanish gatekeeper)

I only encountered a limited number of freshly emerged male imagines fluttering around the shaded area between scattered bushes of Spanish

broom (*Spartium junceum*) Cistus and stunted Holm oak (*Quercus ilex*) which covered the higher reaches of the Baume gorge.

This is a southern European subspecies which is widely distributed in the Iberian Peninsula, but thereafter restricted to the Roussillon, Languedoc and Provence districts of southern France.

My discovery of this interesting "heath" butterfly so far away from the coastal regions was a surprise to me, and I now suspect the range of the subspecies has extended further inland wherever the Mediterranean climate has retained an influence on the predominant vegetation in the region as is the case in the Ardèche. It is perhaps likely that the range of this butterfly may be extending northwards in favourable areas of southern France due to climatic and land use changes; more regular study and observations in the field will be required to sustain this tentative theory of mine.

#### *Coenonympha pamphilus* L. (Small heath)

This common and widely distributed species was found restricted to areas of waste-ground with plenty of grass above the gorge. I was interested to note that the imagines appeared to adopt strict territorial habits of behaviour by often returning to the same spot of ground from where they had been disturbed at rest on first being encountered. Also I observed that this species was one of the last to return to long grasses in sheltered pockets during the late afternoon in order to roost for the night; whereas many larger butterflies such as fritillaries often disappeared between 3 and 4pm, even when the afternoon temperature was still respectably high. Perhaps energy and exhaustion factors are more critical amongst larger insects?

#### *Pararge aegeria aegeria* L. (Speckled wood)

This nominate species was recorded in plentiful numbers engaged in restless flight within dappled shade cast by willow trees and saplings around the camp-site and in particular close to the Baume river.

Frequently butterflies settled on flat stones in the river bed with wings fully extended which afforded me the leisurely opportunity to study the attractive orange and brown tracery displayed on the upperside of both sets of wings.

Female imagines were generally paler in colour and were less in evidence, although I did observe that they were often to be found amongst long grasses around the river banks; whereas the males were restricted to the shadier areas amongst trees, unless engaged in furious territorial battles or graceful courtship "dances" with a female whereupon the pair conducted a hectic spiralling flight together to a level above the tree-tops before parting company and plummeting back

towards the ground. This curious flight behaviour was often repeated by a pair more than once during my presence.

*Lasiommata maera* L. (Large wall brown)

This attractive species of "wall brown" is often encountered in summer months throughout Central and Southern Europe amongst derelict buildings, stone walls and rough waste-ground, and generally favours sheltered areas where some sunshine can prevail.

I found both male and female imagines in restricted numbers within sheltered pockets of scrub and amongst limestone rock outcrops scattered around the gorge hillsides where the butterflies were often to be seen at rest with wings fully opened to display on the uppersides their distinctive chocolate brown coloration and orange postdiscal bands with large black ocelli enclosing white pupils towards the apex of the forewings.

Females were notably not only larger in wing span, but also displayed an extensive bright, fulvous patch of colour in the postdiscal and discal areas of the forewing uppersides; the large black apical ocelli were also very prominent. Although the general coloration and markings were very pronounced amongst females, I was not entirely convinced that these butterflies were of the form *adrasta* Illiger, because they were smaller in wingspan than this distinctive form encountered previously by me in South-west France in the Roussillon district. It is likely that the form found in the Ardèche is intermediate in character.

*Maniola jurtina* L. (Meadow brown)

This wide-spread species was common amongst the dry areas of the hillsides above the gorge especially within sheltered pockets containing grasses and low plants. As expected, most imagines were male, although a few freshly emerged females were found.

These latter butterflies were strongly marked with bright orange discal and basal patches on the forewing uppersides with the prominent black ocellus towards the apex of each forewing.

The wingspan in general of both sexes appeared to be smaller than usual, and I did observe that the females rarely displayed much orange fulvous coloration in the postdiscal area of the hindwing uppersides, which led me to conclude that the species in this region of the Ardèche had not fully reached the subspecific status of *M. jurtina hispulla* Esper as found in South-west France and the Iberian Peninsula.

LYCAENIDAE

*Nordmannia esculi* (Hübner) (False ilex hairstreak)

Although I had found this Southern species of hairstreak to be a very



common butterfly in the Roussillon region of South-west France only a week before my arrival in the Ardèche area wherever holm oak grew in abundance, I noted that this hairstreak was less in evidence around the camp-site and the gorge hillsides where holm oak was widely distributed. It was likely that due to the emergence pattern tending to have been earlier in South-east France in 1982, the main flush of butterflies had passed its peak by the time of my arrival.

The male imagines are rather dull butterflies with a display of unmarked chocolate coloration on the forewing uppersides. The females although similar in size did display a faint fuscous orange flush within the discal area of the forewing uppersides; this diagnostic sexual feature was found to be variable and at times almost absent. The general coloration of both fore and hindwing undersides was always greyish brown with a poorly defined but visible white postdiscal streak and small red submarginal lunules.

I observed that males generally confined their flight activity around the lower branches of young holm oak which grew on exposed ground above the gorge, and females were to be found sitting on exposed foliage with wings open in full sunshine. By adopting this uninhibited behaviour the female imagines were able to attract very quickly any males in the near vicinity. When not seeking female company males often appeared to abandon their flight activity amongst the lower branches and seek the higher canopies of older trees where they appeared to engage in territorial battles together.

#### *Lycaena phlaeas* L. (Small copper)

This widely distributed little butterfly was never far away and was often encountered in small numbers sunning themselves on dry, barren ground amongst rocks and scrub in the hillsides above the gorge. Both male and female imagines were recorded, and I have little doubt that this species is multi-brooded throughout the spring and summer months in the Ardèche region.

#### *Heodes alciphron gordius* Sulzer (Purple-shot copper)

The discovery of this beautiful subspecies in this region of France was perhaps no great surprise to me as such, since I was aware that it is widely distributed in hilly regions in southern France. I was however, surprised to find that the single summer brood appeared to be almost over as there were only a few female imagines to be found without a single male being recorded during my visit. I quickly noticed that the females were in the midst of searching for the withering stems of dock plants (*Rumex* spp.) where the butterfly on finding a plant, immediately started to oviposit around the basal area of the stem. Within a short time of this discovery I

found every located plant to be smothered with ova, and in one instance I was able to sit quietly on the ground and watch a female engage in this activity at close quarters without her being in the least bit concerned at my presence!

The female imago is an attractive butterfly with her display of bright orange fore and hindwing uppersides and a number of prominent black spots in the postdiscal and discal areas.

The underside of the hindwings was ochreous in colour with more pronounced black markings and a broad submarginal band of red lunules, whilst the underside of the forewings was tinged with pale orange with a scattering of smaller black spots at irregular intervals within the submarginal, postdiscal and discal cell. The wingspan was in general found to be large and often measured from apex to base 25mm or more.

#### *Cupido minimus* Fuessly (Small blue)

I found this small Lycaenid in limited numbers darting around an old sheep-track above the Gorge. The terrain in this area was very dry and completely exposed to full sunshine. The imagines were particularly attracted to animal faeces on the track and as many as eight butterflies on this unattractive organic material, probing for chemical salts which are believed to be an essential "food supply" for many Lycaenids. This sight is a common phenomenon on Alpine mountain paths in central Europe and elsewhere, when more than one species of butterfly can be found together.

No imagines were recorded around the river or close to the camp-site.

#### *Plebejus argus* L. (Silver-studded blue)

This species was recorded as being more widely distributed on the lower slopes of the Gorge and favoured less dry conditions than other Lycaenids; sheltered hollows containing grasses and various leguminous plants in flower were favourite sites.

The male imagines displayed a deep purplish-blue coloration on both fore and hindwing uppersides with a broad black marginal border with distinct white cilia. The undersides were generally powdery pale grey with the usual silver-studded submarginal spots on the hind-wings bordered internally with prominent deep orange lunules. The females were universally deep brown on the uppersides with a poorly defined series of orange submarginal lunules on the hindwings; the undersides displayed a similar series of spots and lunules as the males, although the general colour was light brown with a well marked whitish band between the postdiscal spots and the submarginal orange lunules.

*Lycaeides idas* L. (Idas blue)

This species often occurs in the company of the former species and is easily confused not only with *argus* but even more so with *L. argyrognomon* Berg. (Reverdin's blue) wherever the territorial areas of this larger butterfly overlap. I personally find the identification of *idas* to be a difficult task in the field as the male imagines are often restless until they alight on flora or around damp patches on paths.

Upon closer inspection the males were observed to display a bright pale bluish purple coloration with a narrow black marginal border on both fore and hindwing uppersides. The females were generally larger and displayed a deep brown coloration on both fore and hindwing uppersides with a variable blue basal flush and a series of submarginal orange lunules which were more pronounced on the hindwing uppersides; these lunules were not always visible.

Due to the condition of many males being worn and bleached in colour, I deduced that this species had been on the wing since early May. Late June or early July is a more typical period in which to find freshly emerged butterflies with the females extending their emergence into late July. I did record that *idas* was not confined to the same areas as *argus* was discovered, and was in fact often found fluttering around the low herbage on higher elevations above the Gorge where there was a greater exposure to sunshine.

*Agrodiaetus escheri* Hübn. (Escher's blue)

The discovery of this southern European "blue" in the Ardèche region was not in itself a surprise to me, although the emergence pattern was early; this fact was yet another indication to me of the general advanced emergence pattern of butterflies in June 1982. Only three male imagines were in fact found in restless flight on exposed ground above the Gorge and at no time was this species recorded elsewhere.

The distinctive feature of these butterflies was the bright blue coloration on the uppersides of both the fore and hindwings, which at times can cause confusion if *L. bellargus* Rott. (Adonis blue) should also be present. The absence of the white and black chequered cilia and the paler sky-blue coloration will however, avoid any serious risk of misidentifying this species when found on the wing.

As I did not discover the presence of any females and the condition of the males was very fresh, I deduced that this butterfly would be in greater evidence towards the end of June when both male and female imagines would be widely distributed throughout the higher limestone slopes of the Gorge and perhaps even at lower elevations.

*Lysandra hispana* H. & S. (Provence chalk-hill blue)

This species was perhaps the most commonly encountered *Lycaenid* around the camp-site and the upper slopes of the Gorge wherever the terrain was dry and sparsely clad with vegetation. The males were generally in good condition and the few females recorded were very freshly emerged butterflies. Both sexes were active flyers over open ground, although I did observe that whilst avidly feeding on wild thyme and other small flowering herbs, the imagines were studied without difficulty.

Identification of this species can be difficult when second brood imagines are on the wing in late August, if there should also be *L. coridon* Poda (Chalk-hill blue) present, as both species are very similar in character; male *hispana* do, however, tend to display a yellowish hue over the blue-greyish coloration on the uppersides which can also be fuscous in appearance. Fortunately the *hispana* spring brood rarely overlaps the *coridon* single summer brood, and this fact greatly reduces risk of confusion where both species are known to exist.

*Polyommatus icarus* Rott. (Common blue)

I would certainly have been surprised not to have recorded this widely distributed butterfly at some point during my brief visit! In fact most imagines were female and were of the form which display the attractive pale blue basal flush on the uppersides with clearly marked orange submarginal lunules. A few males were seen on rough ground above the Gorge and were noted for their small wingspan. These butterflies were the spring brood which had probably appeared first on the wing in early May; later broods would be in evidence from late July onwards into early October.

*HESPERIIDAE**Carcharodus lavatherae* Esper. (Marbled Skipper)

Amongst the family of "skippers" this species is certainly one of the most striking by reason of its largish size and very distinctive light olive brown coloration interspersed with marbled darker markings and a series of irregular discal spots on the uppersides; the underside coloration on both sets of wings is pale ochreous with vestigial pale white markings distributed in the submarginal and discal areas. The sexual differences are not clearly defined save that the female has a stouter abdomen and has a slightly larger overall wingspan.

This butterfly is a strong flyer and displays amazing acrobatic feats by being able to hover for short periods over flora and then streaking away without warning with sudden changes of direction when encountering

some object in its path such as my presence! Fortunately the imagines did enjoy brief periods of rest on dry ground and rocks in full sunshine which afforded me some opportunity to study this attractive butterfly.

The upper areas of the Gorge slopes provide this species with the perfect habitat as it appears to favour dry exposed calcareous hills with sparse vegetation and low shrubs.

*Thymelicus acteon* Rott. (Lulworth Skipper)

This little "skipper" was only found as small colonies in waste ground pockets lying close to the Baume river banks where grasses were growing in abundance; these areas were well sheltered and provided ideal habitat conditions for this pasture-loving species. No imagines were found amongst the dry slopes and higher elevations of the Gorge, although such areas did harbour pockets of grass waste ground of suitable character. I concluded that this species prefers to breed amongst rich vegetation where the moisture factor is greater.

The imagines were predominantly male and only a very limited number of females were observed amongst each colony found; no aberrational forms were recorded and the general coloration and markings appeared to be constant in character. I have little doubt that this species is widely distributed throughout the Ardèche region.

*Thymelicus sylvestris* Brünnich. (Small skipper)

I found this common species as very abundant amongst rough pasture areas within the camp-site as well as amongst the peach orchards close by where grasses and annual weeds had not been sprayed with herbicides. I particularly observed that this species did not favour the Gorge hillsides and higher elevations where very few imagines were sighted. A close examination of individual specimens had to be carried out because of the general similarity with the next species.

*Thymelicus lineola* Ochs. (Essex skipper)

This species was certainly more widely distributed than *sylvestris*, and was in fact quite common amongst the dessicated grasses and low vegetation within the Gorge hillsides. There were however, a few colonies to be found amongst *sylvestris* in the camp-site area and cultivated orchards beyond, although *lineola* did appear to favour the more exposed areas of ground where *sylvestris* was less in evidence. I deduced that on balance *lineola* has acquired a greater tolerance towards heat whereas *sylvestris* may prefer more temperate conditions with the benefit of sun-dappled shade provided by trees near to hand as well as richer vegetation.

*Hesperia comma* L. (Silver-spotted skipper)

Only one male imago was found in flight amongst a small colony of

*lineola* in the higher elevations of the Gorge where I have no doubt the species is widely distributed from early July until late August. This species appears to be confined to calcareous soil regions and I have little doubt that this butterfly could be found in other similar areas in the Ardèche region without undue difficulty.

### GENERAL OBSERVATIONS

As I have indicated throughout this article the general emergence pattern of all species recorded was more advanced than I had expected upon my arrival, and this discovery was clearly advantageous to me whilst carrying out my brief survey of the butterflies.

The chief factor which appears to determine and govern the emergence pattern of those species with overwintering larvae is the weather conditions during March and April; a mild period during these early spring months with above average sunshine and mean temperatures of 15° - 18°C will activate and accelerate both plant growth and larval feeding by as much as three weeks with the resultant expedition of the pupal period and the final emergence of imagines. This pattern can no doubt be temporarily checked, if the weather is cool and overcast in May, and very poor wet weather with lower than average temperatures during early May is likely to cause extensive pupal mortalities and a low number of emergences. Such adverse conditions are likely to affect Lycaenids and some Nymphalines rather than Satyrines and Hesperiid; these latter two groups are hardier insects when breeding in hills and montane regions where winter and spring weather can often be severe with extended periods of snow and low temperatures.

Although much of the Ardèche as lies south of Aubenas benefits from a Mediterranean climate with attendant flora, the region has a richer vegetation than will be found in the dry coastal districts lying further south and bounding the Mediterranean Sea. This feature is due to the presence of a more varied climate with cool and wet winters arising out of the region's montane topography and thereby receiving more sustained pluvial conditions as part of the complex of the Massif Central.

Since the region is not thankfully a major industrial zone of France and lies so close to the National Park region of the Cévennes, it is to be hoped that this attractive area will be allowed to retain its diverse and important habitats in conjunction with the expanding and profitable viniculture activities as well as other forms of compatible agricultural use. Figure 1, Plate A, is a general view looking west from the Gorge de la Baume, while Figure 2 is looking north and clearly shows the vineyards. On Plate B, Figure 1 is shown a Niobe fritillary enjoying the Ardèche sun in the Gorge de la Baume (photos by the author). I for my own part, can warmly recommend this region for further entomological



Fig. 2. North view from Gorge de la Baume, Ardèche, France.

studies with the useful aid of local French entomological societies or groups which I feel sure could be mutually beneficial to all concerned. With the thoughts of closer European ties with France as an EEC member in 1991 perhaps we should give more serious thought towards closer collaboration with French entomologists by providing them with our own recorded discoveries when we spend holidays in their country. What better way for promoting a true sense of *entente cordiale*!

#### **SEVENTH INTERNATIONAL ENTOMOLOGICAL FAIR AT LYON**

This will be held at the Mairie de Lyon, 12, rue Jean Mermoz, 8th Arrondissement, Lyon, France. The Educational Exhibition will be held on 3rd April when it is reserved for school parties to whom entry will be free. The Trade Fair is on 4th and 5th April from 10.00am until 7.00pm, with an entry fee of 30FF, children under 12 free. Parking is also free. For further information, details of hotels etc, contact ADE Association, 6, Chemin de Valpre, F69126, BRINDAS, France.



## PHASMIDS AND COCKROACHES AS PREY OF SPIDERS AND MANTIDS

by P.E. Bragg (8737)

8 Cornwall Avenue, Beeston Rylands, Notts NG9 1NL.

While in Kinabalu National Park, Sabah, in July 1990, I accompanied Mr C.L. Chan to collect phasmids near the Park Head headquarters. On the second night, at about 11pm, I found a spider eating a large female nymph of *Asceles margaritatus* Redtenbacher (Plate C, Fig. 1). This appears to be only the third recorded incidence of a phasmid falling prey to a spider in the wild. A few nights later a similar situation was encountered but this time it involved a spider and an unidentified species of cockroach (Plate C, Fig. 2). The photographs were both taken using a SLR camera fitted with a 50mm lens. Illumination was provided by a flash unit which was held at the side of the camera. The exposures were made with the aperture set at *f*16 and taken from a range of 35cm.

One night in August 1989 on Mt Serapi, Sarawak, a male *Carausius abbreviatus* (Brunner) was found with only half an abdomen. Clearly something had eaten the end of the abdomen and then the phasmid had escaped. The cause of the missing abdomen is unknown, however the damage done is consistent with a situation which I have seen on a number of occasions in captivity. A preying mantis catching a phasmid by the tail and starting to eat it without having hold of the rest of the body often results in the phasmid escaping although the injury to the phasmid will prove to be fatal within a few hours.

There are very few records of natural predators of phasmids. This is no doubt due to their being largely nocturnal; their excellent camouflage protects them during the daytime so, presumably, their main predators are also nocturnal. There appears to be only one record of a mantis eating a phasmid in the wild (Paine 1968). A recent investigation into phasmids as prey of spiders (Nentwig, 1990) concluded that they are very palatable to spiders but also reported that there are only two records of spiders eating phasmids in the wild (Robinson & Robinson, 1973; Robinson & Lubin, 1979). Swaine states that a spider has been recorded as a predator of *Graeffea crouani* (Le Guillou) but does not give his source or say whether this occurred in captivity or in the wild (Swaine, 1969).

I have found that in captive conditions, phasmids are eaten by spiders, lizards, preying mantids, axolotls, newts, scorpions and frogs. There are also published records of them being eaten by various other animals in captive conditions. Even species which produce a smell when disturbed, such as *Sipyloidea sipyilus* (Westwood), are readily eaten. The main problem for the predator is seeing its prey; if the phasmid remains

stationary after being placed in the cage then it usually remains safe. In the wild most species of phasmids do not usually move in the daytime and should therefore be safe from all but a lucky find by diurnal predators.

A similar situation exists for cockroaches; many are more active at night and their predators should therefore be nocturnal. During the daytime many cockroaches tend to hide under bark, leaves, etc and are not very likely to be found and eaten. However, as cockroaches tend to be much more numerous than phasmids and some species are found in buildings, there are many records of cockroach predators.

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#### ENTOMOLOGICAL CLUB GRANTS

The Entomological Club has a small income from investments and through the generosity of members attending its annual Verral Supper, grants are made to assist entomologists studying British insects. The Club would need to be satisfied that the line of work would lead to publication and that it is not fundable elsewhere. Grants would not exceed £200. Applications should be addressed to Claude Rivers, The Entomological Club, 17 Cumnor Rise Road, Oxford OX2 9HD.

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**A NOTE ON THE AUSTRALIAN WEEVIL *ZYGMAEUS*  
*ANGUSTATUS* LEA (COLEOPTERA: CURCULIONIDAE)**

*by Trevor J. Hawkeswood*

49 Venner Road, Annerley, 4103, Brisbane, Queensland, Australia.

A new adult foodplant, *Alphitonia excelsa* (Fenzl) Benth. (Rhamnaceae) is recorded here for the Australian rainforest weevil, *Zygmaeus angustatus* Lea (shown on Plate D, Fig. 1).

On 22nd November 1983, I observed several adults of this apparently flightless weevil on the foliage of *A. excelsa*, near Mt. Glorious, south-eastern Queensland (27°24'S, 152°48'E). The adult beetles, which are mostly glossy black in colour, with prominent foveae, puncturation and bumps on the pronotum and elytra, measure 18 - 20mm in total body length. The beetles in the field had been mating and/or feeding on the leaves of the host plant, especially on the midribs which were more prominent on the underside of the leaves. The beetles were situated on a small tree of *A. excelsa* about 3.5 metres in height and it was growing at the margin of rainforest and wet sclerophyll forest.

*Alphitonia excelsa* is usually a fairly large rainforest tree with alternate, broad, ovate to elliptical, entire leaves which measure 7 - 12cm long, and are usually white or greyish on the undersurface where the veins are more prominent. The plant at Mt. Glorious was not in flower or fruit at the time of observation.

When the beetles were initially disturbed, they did not attempt to fall to the ground nor cling to the stems/branches as do many other weevils, but mainly rushed to other cover amongst the branches where they remained until further disturbed. Three of the beetles were collected for voucher material.

The habits and foodplants of *Z. angustatus* have been previously unknown. The species appears to be uncommon and since 1983, despite other extensive searches, I have not seen or collected the beetle again. It is poorly represented in Queensland insect collections and appears restricted to south-eastern Queensland and possibly north-eastern New South Wales rainforests.

The insect fauna associated with *A. excelsa* is poorly known, although Brooks (1948) recorded the jewel beetle *Hypocisseis latipennis* Macleay (Buprestidae) as a feeder in the adult stage on the leaves, while Common & Waterhouse (1981) listed *A. excelsa* as a larval host plant for the following Australian butterflies from the family Lycaenidae: *Danis danis serapis* Miskin, *Danis hymetus taygetus* (C. & R. Felder), *D.h. taletum* (Waterhouse & Lyell), *Hypochrysops ignitus ignitus* (Leach) and *Rapala varuna simsoni* (Miskin). *A. excelsa* is widely distributed in eastern

Australian rainforests where it is often common, especially in exposed areas such as disturbed sites at the rainforest margins. It is likely that with further detailed investigations, a much broader and diverse spectrum of insects will be found to be closely associated with this species; not only with the leaves, but also with the fruits and flowers of this tree.

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### **PRISTHESANCUS PLAGIPENNIS WALKER, A LARGE TROPICAL ASSASSIN-BUG FROM AUSTRALIA (HEMIPTERA: REDUVIIDAE)**

by Trevor J. Hawkeswood

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One of the largest and most distinctive species of assassin-bug to be found in Australia is *Pristhesancus plagipennis* Walker (formerly included under the name of *P. papuensis* Stal, Malipatil, 1986) (Plate D, Figs. 2 and 3, this paper). The bug is also one of the most widespread of the family in Australia, being found in Queensland, New South Wales, South Australia, Western Australia and the Northern Territory (Malipatil, 1986; Hawkeswood, 1990), where it is more common in coastal tropical localities. The mature adult bug is mostly black and maroon-brown in colour with orange legs and measures 24 - 40mm in body length, excluding the length of the proboscis which is about 7 - 9mm long, extremely sharp and is most probably able to administer a sharp and painful jab to human flesh! McKeown (1942) noted that adults of this species (cited as *P. papuensis*) usually rest upon the flowers of native plants where they seize bees and other insects arriving to feed on the nectar. McKeown (1942) also added that *P. plagipennis* (as *P. papuensis*) had been recorded as a pest in apiaries, where it kills large numbers of bees (*Apis mellifera* L., Apidae), and after sucking their bodies, allows the dead bodies to fall on the ground, until there is quite often a large heap of dead bees beneath its resting place. For this reason the bug is known as the Bee Killer.

My own field experiences with this beast have been mostly in the *Eucalyptus-Acacia* woodlands of the Brisbane area, south-eastern Queensland, where the bug is diurnally active mostly during September to February (summer in Australia). Individuals may be encountered on the foliage of non-flowering grass-trees, *Xanthorrhoea johnsonii* A. Lee (Xanthorrhoeaceae) during September to February (Plate D, Fig. 2) and

on flowering *Pultenaea villosa* Willd. (Fabaceae) (Plate D, Fig. 3) and flowering *Leptospermum flavescens* Sm., (Myrtaceae) during September to October. From 2 - 5% of *X. johnsonii* plants in one area of woodland (over 150 plants examined) on the Griffith University campus, Brisbane, Queensland, possessed at least one bug at the time of observation, while occasionally two bugs per plant were observed. The bugs usually rest motionless amongst the long, slender leaves of the grass-tree towards the ends or in the centre of the radiating mass of fronds and hunt insects that use the leaves for perching. The leaves of *Xanthorrhoea* do not appear to provide much camouflage for the bugs since their dark bodies contrast well against the pale green leaves of *Xanthorrhoea* (Fig. 2), but despite this, *P. plagipennis* appears remarkably efficient in capturing flies, leaf-hoppers and even grasshoppers that land upon, or shelter amongst, the grass-tree foliage. However, *P. plagipennis* adults appear well camouflaged upon flowering plants of *P. villosa* (Fig. 3) and *L. flavescens* where I have observed a number of bugs feeding upon the body fluids of recently killed insects attracted to the flowers upon which the bug rests. The prey included the following identified insects:- bees (*Apis mellifera* L., Apidae), butterflies (*Euploea core corinna* Macleay, Nymphalidae), beetles (*Stigmodera octospilota* Laporte & Gory, Buprestidae and *Metriorrhynchus rhipidius* Macleay, Lycidae) and flies (*Amenia imperialis dubitalis* Malloch, Calliphoridae and *Rutelia* spp., Tachinidae) (Hawkeswood, 1990).

Further specimens of *P. plagipennis* were encountered during the summer of 1990-1991 when several adult and sub-adult bugs were observed on the flowers of *Baeckea stenophylla* F. Muell. (Myrtaceae), a wispy, slender shrub growing to about 1.0 - 1.5m high, with small, white, bowl-shaped, nectariferous flowers. The site was in a *Banksia-Leptospermum* heathland near Hastings Point, north-eastern New South Wales (28°20'S, 153° 23'E). The prey of the bugs at this site were noted to be buprestid beetles *Stigmodera octospilota* Laporte & Gory and *S. cupida* Kerremans (two of the most common Buprestidae in the area) as well as some unidentified flies.

Very little information is presently available on the biology of Australian assassin-bugs and *P. plagipennis* and other common species should provide good subjects for further research both in captivity and in the field, for those people with the time and interest.

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**CHAULIOGNATHUS NOBILITATUS (ERICHSON), AN  
AUSTRALIAN CANTHARID BEETLE (COLEOPTERA:  
CANTHARIDAE)**

by Trevor J. Hawkeswood

49 Venner Road, Annerley, 4103, Brisbane, Queensland, Australia.

The world-wide genus *Chauliognathus* (Cantharidae) is represented in Australia by at least a dozen species. Two of the better known species are *C. nobilitatus* (Erichson) and *C. pulchellus* (Macleay); the latter species often occurs in very large numbers on the flowers of native plants in eastern Australia during summer (Froggatt, 1907; Zeck, 1919; McKeown, 1942; Webb, 1986). Both species are medium-sized, aposematic beetles occurring in eastern Australia, with *C. pulchellus* usually found in New South Wales and Victoria and *C. nobilitatus* in New South Wales and Queensland. *C. nobilitatus* is more common in Queensland, where it virtually replaces *C. pulchellus*, while both species occur sympatrically in coastal New South Wales. *C. pulchellus* is always the more common species where they both occur.

My first field experience with *C. nobilitatus*, the subject of this article, was during 1980 when I noted that it visited the flowers of the woodland tree, *Angophora woodsiana* F.M. Bail. (Myrtaceae) at Brisbane, south-eastern Queensland (Hawkeswood, 1981; species cited as *Chauliognathus* sp.). It was noted (Hawkeswood, 1981) that *C. nobilitatus* was often observed feeding on nectar from one or two flowers during each feeding bout and that small amounts of *A. woodsiana* pollen were carried on the head, thorax, abdomen and legs. Although these beetles were extremely active on the flowers, they rarely contacted the stigmata of the large flowers and flights to other plants in the area observed did not occur so I regarded them as not very important in the pollination of *A. woodsiana* (Hawkeswood, 1981). However, *C. nobilitatus* appeared to play a minor role in the pollination of *Leptospermum flavescens* Sm. (Myrtaceae) (Hawkeswood, 1987) and of *Bursaria spinosa* Cav. (Pittosporaceae) (Hawkeswood, 1990). These beetles may play a minor role in cross-pollination of the flowers of these two species of native plant since my observations indicated that they were active, carried pollen on the head, thorax and underside of the abdomen and regularly made inter-plant flights during which they transfer pollen to other flowers on different plants. Webb (1987) also noted this species (cited incorrectly as *Chauliognathus nobilitata*) was rare on the flowers of the small woodland and heathland tree *Angophora hispida* (Sm.) Blaxell (Myrtaceae) in the Sydney area, New South Wales.

Adults of *C. nobilitatus* are often observed mating on their foodplants but occasionally they mate on other non-foodplants. The colour

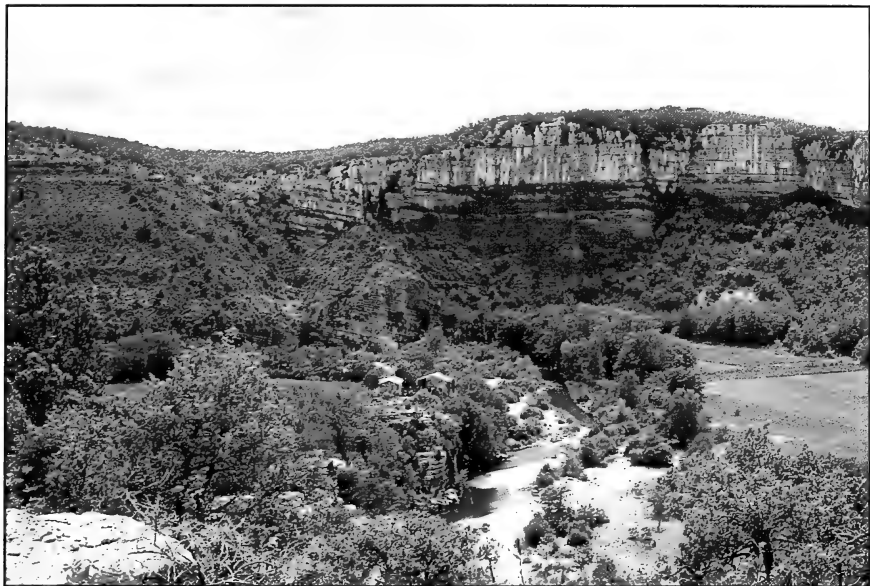


Fig. 1. Ardèche. West view from Gorge de la Baume



Fig. 2. "Mothercare" *F. auricularia* looking after her eggs



Fig.1. Niobe fritillary enjoying the sun, Gorge de la Baume



Fig. 2. Wartbiter, *D. verrucivorus*, purple form



Fig. 3. Wartbiter, *D. verrucivorus*, green downland form



Fig. 4. Wartbiter, *D. verrucivorus*, 3rd instar nymph of purple form





Fig.1. Male Wood cricket in the New Forest



Fig. 2. Field crickets (breeding stock) courting

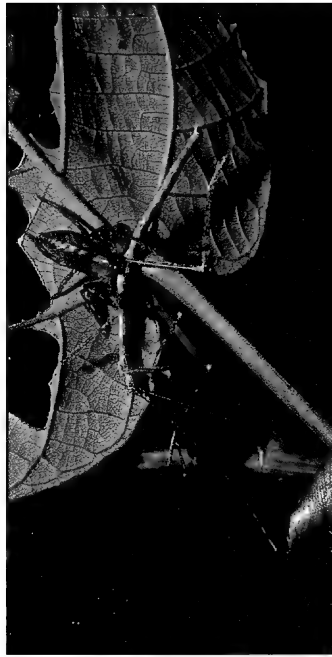


Fig. 3. Spider eating *Asceles margaritatus*



Fig. 4. Spider eating a cockroach



Fig. 1. Adult of Australian weevil *Zygaenaeus angustatus* (Photo: author)



Fig. 3. Mature adult of *P. plagipennis* hunting prey on the flowers and foliage of the yellow pea, *Pultenaea villosa*, near Brisbane, Queensland (Photo: author)



Fig. 2. Mature adult of *P. plagipennis* on the leaves of *Xanthorrhoea johnsonii* at Brisbane, S-E. Queensland (Photo: author)

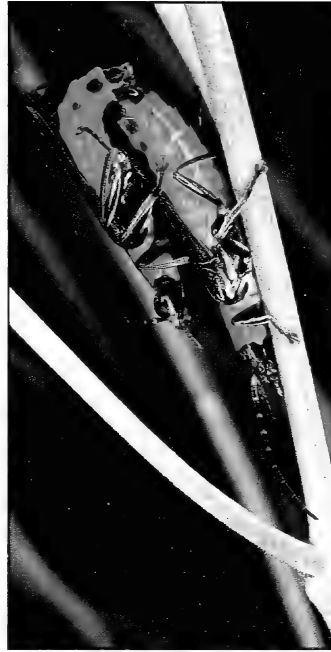


Fig. 4. Copulating pair of *C. nobilitatus* near Armidale, New South Wales, February 1984 (Photo: author)

photograph (Plate D, Fig. 4) illustrates a pair of *C. nobilitatus* on leaves of an unidentified plant (probably a *Cassinia* species, Asteraceae) which is not utilised as a foodplant, during February 1984, near Armidale, north-eastern New South Wales (30°31'S, 151°38'E). The male is slightly smaller in size (15mm) than the female (17mm body length). Copulation may last for over 30 minutes during which the beetles mainly rest on the foliage.

Little has been recorded on the biology of Australian *Chauliognathus*. The larvae are purported to be carnivorous and develop in the soil where they pupate and emerge as adults during summer to feed on nectar and possibly pollen of their foodplants. Both *C. nobilitatus* and *C. pulchellus* are aposematic beetles with bright yellow bodies and dark green elytra. The two species differ in the colour of the pronotum: in *C. nobilitatus* it is orange-red while in *C. pulchellus* it is dark green with lateral and basal margins of bright yellow. Also *C. pulchellus* is a slightly larger species. Moore & Brown (1978) identified several alkaloids in the secretions from defensive glands situated in the prothorax and abdomen of *C. pulchellus* and suggested that these secretions may be important in protection against vertebrate predators. It is also possible that the related *C. nobilitatus* also has these defence chemicals. I have observed individuals of both species alive as well as dead in spider webs and many of them had been partially eaten by the spiders. The defensive secretions may be a protective adaptation against vertebrate predators but appear not to be effective against invertebrate predators but clearly, more field observations are needed for a better understanding of this phenomenon.

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## BUTTERFLIES IN DORSET IN OCTOBER 1991

by Peter Sharpe (8439)

My wife and I spent a week in Dorset between 12th and 19th October last year, mainly to do moth trapping. However, while out walking during the day, we were surprised to see so many butterflies and while these were mainly Red admirals (*Vanessa atalanta*) and Commas (*Polygonia c-album*) we recorded a total of thirteen species. The most surprising record was on the 15th when walking between Lulworth Cove and Durdle Door, when we saw several very fresh specimens of the Meadow brown (*Maniola jurtina*) and of the Grayling (*Hipparchia semele*), which surely must be second broods. As well as the above four species we recorded Large and Small whites (*Pieris brassicae* and *rapae*), Small copper (*Lycaena phlaeas*), Wall (*Lasiommata megera*), Small heath (*Coenonympha pamphilus*), Speckled wood (*Pararge aegeria*), Peacock (*Inachis io*), Painted lady (*Cynthia cardui*) and Small tortoiseshell (*Aglais urticae*).

## WINTER BUTTERFLIES IN HERTFORDSHIRE

by Stuart Pittman (9135)

On the mild morning of 23rd November last year I was pleased to observe a Comma (*Polygonia c-album*) soaking up some rare sunshine on my rhododendron bush. This sighting is a new record for the Hertfordshire County Atlas (Sawford 1987, *Butterflies of Hertfordshire*) beating one that has stood for forty years since the 14th November 1951.

Of equal interest, the following day while inspecting my new loft window, I had a lucky sighting of a Small tortoiseshell (*Aglais urticae*) fluttering gently a few inches above the roof tiles. Even as I focussed on it, it was taken in mid-air by a starling (*Sturnus vulgaris*) swooping from the chimney pot only a few feet from my head. Its morsel secured, the bird glided onto the apple trees below to gobble up its prize. This is my latest personal sighting of a Small tortoiseshell also making it my latest ever sighting in the year of a butterfly.

## THE MONARCH BUTTERFLY IN SPAIN

by C. Rankin

Following the article on the Monarch and Plain tiger butterflies in Spain (*Bulletin* 50: 48) it may interest members to know that whereas we generally see the Monarch (*Danaus plexippus*) fairly commonly in the garden and in Nerja, with 12 or more sightings a year, up to 2nd October last year I saw only a couple. This is possibly due to a heavy aerial spraying against the Pine processionary moth caterpillars in the hills immediately behind us which took place last autumn.

## THE PURPLE FORM OF THE WART-BITER, *DECTICUS VERRUCIVORUS*

by *Peter G. Sutton (7388) and David E. Browne*

*Flat 2, 11 Central Avenue, Telscombe Cliffs, Newhaven, E. Sussex BN10 7LY.*

The Wart-biter is a cricket of rare beauty. To find a Wart-biter in the heat of a summer's day in the lush grass of the South Downs, is like finding a green jewel, and a moment never to be forgotten. Even in July's hottest days when the males can be located by their lazy flickering chirp, this elusive insect disappears into the herbage at the slightest sign of its sunburnt admirer.

The Wart-biter has always been a rare insect in the British Isles, and is the rarest of all British Bush-crickets. It is confined to southern England and has only ever been recorded from a handful of counties since Orthopteran records began. In fact, for 28 years, between 1927 and 1955, there were no recorded sightings of the Wart-biter in the British Isles (Ragge, 1965).

It is now only recorded at four sites; a small and fluctuating colony on heathland in Dorset, a possibly extinct grassland colony in Wiltshire and two chalk downland sites in East Sussex (Marshall and Haes, 1988).

The Wart-biter is a large insect and there are two distinct forms in the British Isles as observed by Marshall and Haes (1988). The heathland form, as found in the Dorset colony, tends to be larger than the downland variety, and is in keeping with measurements typical of specimens found on the Continent. The main characteristic of this form is the prominence of dark brown blotching on the pronotum and wings. The chalk downland form tends to be smaller, and mainly green with little spotting. although Marshall and Haes (1988), indicate that these visually distinct forms may have arisen from colonies crossing on different portions of the last final land connection with the Continent. It is also possible that the downland variety has become so as a function of its environment. For instance, in both varieties, after 8,000 years of isolation, the tegmina appear to be shorter than in continental varieties (Marshall and Haes, 1988), but it is only the downland variety that has become distinctly smaller. This may be because downland (bearing in mind that the Wart-biter is on the edge of its range in southern England), is an overall cooler habitat than heathland, or that size and colour are integrally related to the diet of the downland form. In any case, the matter is open to speculation until the relevant studies can be performed.

On the Continent, the Wart-biter appears in a range of colour forms, but Bellman (1988) concludes that in Britain it is always green. However, recent studies into colour variation in southern England by A.J. Cherrill

and V.K. Brown (1991) have shown the existence of two other distinct colour varieties; grey and purple/yellow. These were found to be distinctly uncommon occurrences and were found in very small numbers over three years in a survey carried out on the largest downland population. No recordings of these colour forms have been recorded in any other British colony. Cherrill and Brown (1991) have put forward a convincing argument that the brown form of the Wart-biter, *bingleii*, recorded from a faded museum specimen in 1825 by Curtis (Marshall and Haes, 1988), was in fact a specimen of the rare grey variety. Whilst the grey variety does appear on the Continent, there has never been a recording of the purple/yellow variety, and it appears to be, at present, indigenous to a single site in the south of England.

An immediate observation from the results of Cherrill and Brown (1991), is that with respect to the relatively constant frequency of the grey form, the frequency of the purple/yellow form fluctuates, indicating a climatic factor in the expression of the genetic material for this colour form (cf. increased expression of the melanic form of the European adder, *Vipera berus*, at higher altitudes). This is in good accordance with the hot summer of 1987.

A commoner explanation would be that with the increased numbers produced by the hot summer of 1987, there would be a chance of greater numbers of purple/yellow Wart-biters being produced by application of simple Mendelian logic. This however would not explain the still constant frequency of the grey variety, whose numbers would also be expected to increase.

The illustration (Plate B, Fig. 2) of the purple/yellow variety of the Wart-biter, found by David Browne is the first ever to be published. Its spectacular markings show that it differs substantially from the green form (Plate B, Fig. 3). The wings, prominently marked with very dark brown blotches, are yellow instead of green, as are the sides of the pronotum and front edge of the lower femur. The legs and underside, and notably the head and the flanks of the abdomen are purple, and there is a central purple stripe on the sides of the pronotum also. The only green present is on the crown of the head and thorax, and the green dorsal stripe of the abdomen (separated by a central brown dorsal stripe as seen in earlier instars). A third instar nymph is shown on Plate B, Fig. 4.

Hopefully, with continued careful monitoring and protection of this downland site, the Wart-biter colony will continue to survive and produce the rare colour forms observed.

We would like to thank A.J. Cherrill and V.K. Brown for their invaluable work in the study of colour variation of the Wart-biter in

southern England, and for making their work available to us before its publication, and J. Marshall and E.C.M. Haes for correspondence and guidance. All the photographs reproduced on Plate B were taken by Peter G. Sutton.

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### ABUNDANCE OF BUTTERFLIES (AND MOTHS!) IN CAMBRIDGE

by Brian O.C. Gardiner (225)

All the tales of woe I keep hearing, about the scarcity of butterflies did not apply to Cambridge last year. Even though some species ex hibernation plus Orange tips were about earlier (we did have a mild winter) it could be that June, in which we had at least some rain every day, although by no means enough to lift the drought conditions and hosepipe ban, quite clearly must have suited the lepidoptera as my garden, as well as those of my neighbours, has been swarming with Holly blues of both first and second generations. With both holly tree and firethorn present, most of them seemed to be flying around and settling on the latter. Even into the house flew the Meadow browns while Small whites have been seen in their hundreds with a few Green-veined and Large whites around for good measure. The buddleia has produced its usual feeding crop of Small tortoiseshells and Peacocks, both of which were early emergers from hibernation, having been seen in February. Walks in the surrounding countryside or National Trust properties have also been a source of various sightings. Gatekeepers, Skippers, Small and Common blues, Red admirals, Commas, as well as those seen in my garden. Although I no longer run a moth trap, every time I do any watering (by can, hoses being banned), or weeding, I disturb literally dozens of moths which are resting up during the day and more than I usually expect have been coming into the house, garage and garden shed. Nothing rare or migrant unfortunately, and by far the commonest moth late July and early August has been the Large yellow underwing, comprising at least a quarter of those I have disturbed from foliage.

## AN ADDITIONAL RECORD OF *ZIZEERIA KNYSNA* FROM MALTA

by Aldo Catania (7680)

Plot 135, Pembroke, St Julians, Malta.

On Sunday, 14th October 1990 I visited Wied Qirda, near Qormi, to photograph butterflies. This time of the year is, in Malta, usually ideal for the migratory species Clouded yellow (*Colias croceus*) and Painted lady (*Cynthia cardui*) and also for freshly emerged late broods of many of the indigenous butterflies. No less than ten species could be seen at any one time feeding on the yellow flowers of the large fleabane (*Inula viscosa*).

Present in large numbers were the Swallowtail (*Papilio machaon*), small and Large whites (*Pieris rapae* and *P. brassicae*), Clouded yellow and Small blue (*Polyommatus icarus*) while smaller numbers of Speckled wood (*Pararge aegeria*) and Pygmy skipper (*Gegenes pumilio*) were present. Odd specimens of battered Painted lady and Meadow brown (*Maniola jurtina hyperhispulla*) completed the list.

Amongst the huge numbers of Common blues I noticed a male specimen with unusual underside markings. I boxed it and on closer examination it proved to be a male African grass blue (*Zizeeria knysna* Trimen), still in immaculate condition. This specimen is only the third record from Malta. The first was taken by V. Portelli from Wied Zembaq, limits of Birzebbugia, in March 1966 and the second, another male, was recorded by G. Bonett from Ghadira Nature Reserve in March 1978.

I would like to thank my girlfriend Moira, a constant companion on my entomologising outings, and Paul Sammut for his help in writing this note.

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### PRACTICAL HINT — LOCALITY

by Christopher Nissen (7002)

A colony of the Glanville fritillary (*Melitaea cinxia*) was established artificially near the railway line at Lymington, Hampshire, many years ago and I wonder if it still survives?



## THE COMMON EARWIG

by K.C. Lewis (3680)

108 Park View Road, Welling, Kent DA16 1SJ.

I wonder how many members, when out on a day's ramble, come across an insect that is so common that one encounters it on almost every trip, dismisses it out of hand and yet, like me, would find it difficult to write more than a hundred or so words about it or the family to which it belongs. One such insect is the common earwig of the order Dermaptera (from the Greek, derma = skin).

All I knew about this insect was that it was about a quarter of an inch long, had calliper-like appendages at the end of its body, was not liked by gardeners as it nibbles their prize blooms, and could be removed by placing an upturned flowerpot filled with straw on the end of a stick (not, incidentally, very successful).

On looking up this interesting family of insects I found that the Dermaptera (once placed in the Orthoptera) is not a very large order having only about 1,050 species in seven families worldwide. Most of them can fly but seldom do (some are wingless). Europe has about thirty species but the British Isles has only seven, of which only two are common.

There are also two very exotic insects of the genus *Hemimerus* that are external parasites on a large African rat (*Cricetomys*), but this earwig is sometimes placed in a sub order of Dermaptera or in a separate order (Hemimerina). This wingless insect which has only filamentous cerci instead of forceps, is illustrated in Fig. 1.

Two other related species from the East Indies (family Arixeniidae) live as parasites on bats. They are viviparous in that the eggs hatch and the young are at first nourished within the mother's oviduct by a placenta-like organ that joins the abdomen of the embryo to the ovarian tissue of the mother. But because of the vast differences between the habits of the true earwig and the *Hemimerus* parasites, the four species have now been placed in their own order Diploglossata.

It was on a visit to Chalk Wood, Bexley, Kent on 21st January 1991, while looking for larvae of Cerambycidae in dead stumps of silver birch and pine that I found two females and one male of the common earwig *Forficula auricularia*. This insect is a native of Europe and the British Isles but has now spread, due to commerce, to the Americas in the West and the islands of New Zealand and Tasmania to the east.

The only other common earwig found in the British Isles is *Labia minor* of the family Labiidae. This earwig is a smaller insect and can be identified by its second tarsal segment which is normal, whereas in *auricularia* the tarsal segment is expanded (see Fig. 2).

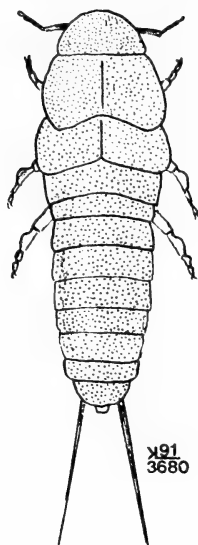


Fig. 1. First instar nymph of *Hemimerus talpoides*.

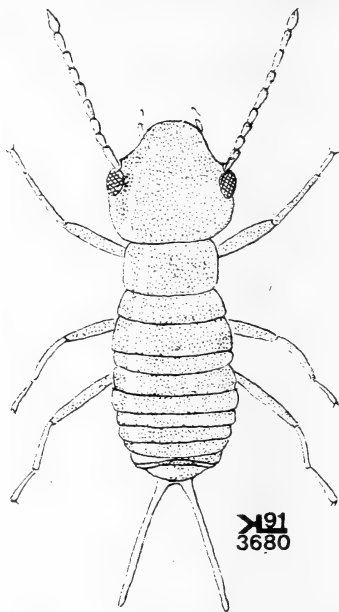


Fig. 4. *Forficula auricularia* nymph 24 hours after hatching.

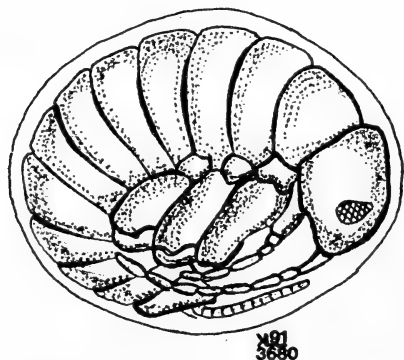


Fig. 3. Fully formed *Forficula auricularia* nymph curled inside egg.

Some books give *L. minor* as being common but a Natural History Museum publication printed in 1909 states that it is not often seen as it is chiefly found in manure heaps. As we do not now rely on the horse as a mode of transport I would presume that this insect is getting scarcer. I have never seen one in this wood although the rides are used extensively for equestrian pursuits.

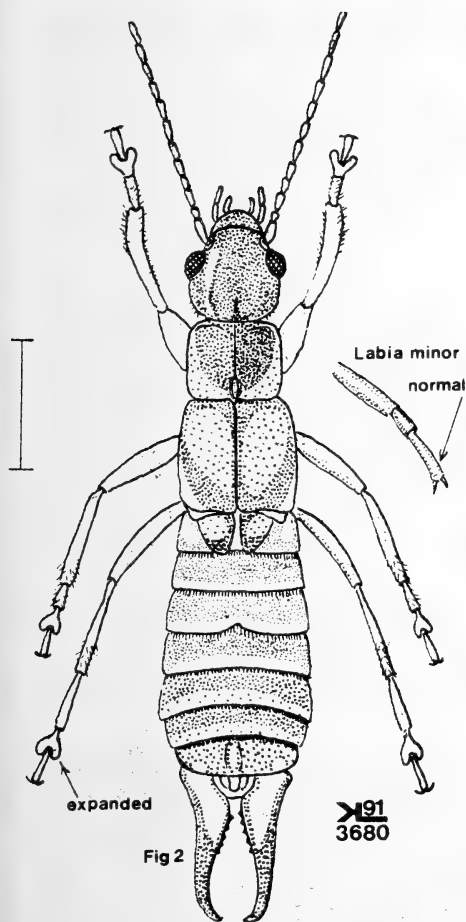


Fig 2

Fig. 2. Male of Common earwig, *Forficula auricularia* to show difference in legs from *Labia minor*.

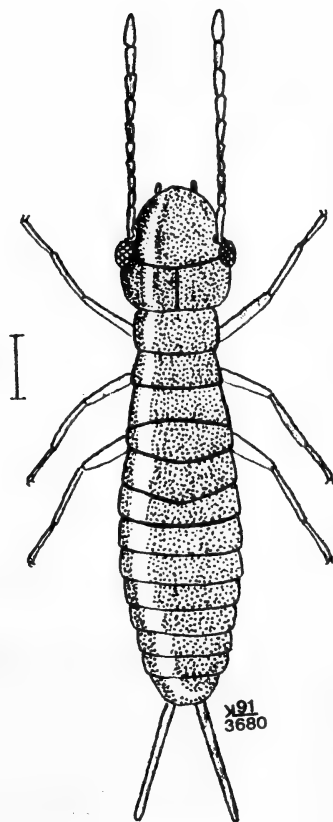


Fig. 5. *Forficula auricularia* nymph two months after hatching.

I was recently given permission to turn over some manure heaps in one of the many stable yards in the area but was unable to find a specimen of this insect. (I did, however, acquire some strange looks from riders.)

The family of earwigs is very old and fossils have been found in Kazakhstan from the Jurassic beds which may link Dermaptera with an ancestor of the cockroaches of the order Protoblattoidea. Even the name "Earwig" is old and is said to have originated from the Anglo-Saxon

word Earnicea (ear creature). I have as yet been unable to find a single case recorded of an earwig entering into an ear which then required medical attention.

*E. auricularia* overwinters in cavities and during the autumn or early spring the female will deposit 40 - 60 eggs (typical egg Fig. 3) in a suitable place and will then stand guard over the clutch licking them often to clean and remove fungal spores (colour plate A, Fig. 2). Even when I gently dispersed the eggs with a camel-hair brush the female collected them all together again very quickly.

After hatching (April - May in the open) and during the first nymphal stage the female was frequently observed herding her young brood by repeatedly touching them with her antennae. Although four to six moults can occur (the nymph inflating itself between each stage by taking in air) it is usual for the nymph to leave the nest after the first moult and wander off. After the nymphs have departed the female will feed for a time and then rear a second brood. The timetable that I observed for the earwigs in captivity is thus:—

21st Jan 1990	Two females and one male found inside log.
23rd Jan 1990	48 eggs laid.
27th Jan 1990	One of the females killed and partly eaten.
19th Feb 1991	Eggs hatched, nymphs massed in ball.
1st March 1991	Nymphs darker in colour starting to disperse.

Fig. 4 is a nymph 24 hours after hatching from the egg and Fig. 5 when two months old.

The above table cannot, of course, be compared with a timetable in the open as my insects were in an artificial environment which was free from cold or frost; it is just a guide. The earwig is said to be omnivorous, feeding mainly on green plant tissue (I have used bran in captivity). It has also been observed that the earwig *Labidura riparia* and some other species are probably predatory as they have been seen using their forceps to catch prey which they then use to hold the prey while eating it.

One other earwig of interest is *Dilatys longisetosa*, which is a native of Ceylon. This insect leaves the egg with its cerci longer than its body. It continues in this way through all the nymphal stages until its last moult when the cerci are replaced by forceps. It is believed that this process may also occur in other exotic species. I find it fascinating that whilst the vast majority of insects are solitary in habit and show no maternal care, the earwig and some beetles do. Is it because the solitary insect can afford to be cavalier in its approach to the next generation by laying a large amount of eggs to compensate for a high mortality rate? Having bred six batches of the beetle *Necrophorus humator* in 1991, in which parental care is also administered, the egg and larval batches never numbered

more than 63, the other totals being 47, 35, 31, 21, 19 (a total of 216 insects returned to the wild).

Even the coleopterists do their bit for conservation (see Editorial in June 1991 *Bulletin*, page 97). As the earwigs' egg batches only total between 40 - 60 I think there could be a case for believing that parental care has evolved over millions of years to compensate for the low number of eggs laid.

As I finished writing the above notes one of our local newspapers dropped through the letter box. It carried a report about an infestation of earwigs. A photograph showed a wall of a kitchen covered in them. Apparently, the unfortunate lady, who lives in Erith, Kent, told the reporter that she has an infestation every summer and on contacting the local Health Department was informed that there was not a lot they could do. I wonder if the earwigs were obtaining moisture which may have formed on the wall during the process of cooking. The wall appeared from the photograph to be painted. I know that some insects are attracted to freshly plastered walls but in this case the house was pre-war.

### FROM THE AES REGISTRAR

By the second week in January, over half the members had renewed their subscription for 1992 and the Society is indebted to those members who have generously added a donation to their renewal.

Many members still fail to supply their membership number which adds to my task of correct allocation. Remember, your number is printed on the address label of your *Bulletin* envelope. You are also reminded that, if you change your address, I am the correct person to advise.

Every year there are a few *Bulletins* returned marked "Gone away" because advice has gone to some other officer of the Society. The year 1991 saw an increase in our membership and we again approach the 2,000 mark. Perhaps we shall achieve it in 1992.

Nancy Cribb

### A CLOUDED YELLOW IN STAFFORDSHIRE, 1991

by Jan Koryszko (6089)

On 7th September last year I was walking along a lane in Moddershall when a Clouded yellow (*Colias croceus*) flew over a hedge in front of me, being quickly chased by two Small coppers (*Lycaena phlaeas*). So far as I am aware, this is the only record of this migrant in Staffordshire last year and is the first time I have seen it since the migration year 1983, although others have recorded it since then.

## JOURNAL REVIEW

*Tropical Lepidoptera*. Edited by Dr John B. Heppner. Published semi-annually by the Association for Tropical Lepidoptera, c/o Florida State Collection of Arthropods, P.O. Box 147100, Gainesville, Florida 32614-7100, USA (to whom all subscriptions, £15 per year, and correspondence should be sent).

We welcome this new journal which commenced publication in 1990 and which has just come to our notice. It adopts a completely new approach to entomological publishing being in the large A4 format and full of colour and we mean *full* of colour, not just a few illustrations or plates. More like *The Field* or *Country Life* but without the adverts. In the latest issue before us (Vol. 2, No. 1) which contains 84 pages plus covers, not only are three of the cover pages in full colour, but no less than 30 of the 84 pages are entirely in colour and there are also small colour illustrations scattered throughout the rest of the journal, as well as there being many line and monotone Figures.

As an editor I can only feel envy for the editor of *Tropical Lepidoptera* who has clearly been given a brief to produce a quality publication without having his hands tied by having to keep within strict financial limits. The layout is clear, making superb use of the A4 page size by using large point size headings and clear sub-paragraphing by means of using bold and italic typefaces. In particular the arrangement of the references, which in many journals are printed in smaller type and close-set, has broken with tradition and they are so clearly set out as to make it a pleasure instead of an eyestrain to refer to them. Dr Heppner, the Board of Directors and the Advisory Council of the Association for Tropical Lepidoptera (and we note that they have a world-wide membership) are to be congratulated on their vision and backing for this publication.

*Tropical Lepidoptera* cannot be studied in isolation and while it is true that many of the species being dealt with in the articles in this journal are indeed from the hot tropical regions, the fact that several articles deal with Florida (see below) and others come from as far afield as Taiwan, North Africa and Europe, not places I normally associate with the word "tropical", means that this new journal has broad coverage and liberal interpretation of the word "tropical" and this, combined with the scientific accuracy (peer-reviewed articles), the mix of interesting "Natural History" with this scientific content and the superb colour illustrations should ensure that it has a broad and world-wide appeal.

It is worth giving a brief account of the articles in this number. We start off with "Photographing Neotropical Metalmarks" which is illustrated with photographs of 40 species of these Riodinids in their natural surroundings. This is followed by a long article on "Brachyptery

and Aptery in Lepidoptera". This is illustrated extensively with over 121 pages in colour, although this time they are of set specimens, and there are many line drawings as well. This article includes a greater proportion of European and other non-tropical region species, including British (e.g. *Nyssia zonaria* and *Ligynoptera fumidaria*) as well as the truly tropical ones. How many of us, I wonder, realise that some tropical butterflies are brachypterous? I was also intrigued to see that the Algerian arctiid *Cymbalophora haroldi*, which so much resembles our Garden tiger moth (*Arctia caja*) has an almost wingless female. This long article is followed by "The First Old World Record of the Moth Family Arrhenophanidae" which records specimens of this otherwise very tropical family from Taiwan. Other new species reports are of *Coladenia* from Luzon, *Dalla* from Mexico; *Ethmia* from Florida.

Florida, indeed, is particularly well catered for. "New Noctuid Moths from; *Tortyra* Metalmark Moths of; *Hemerophila* Metalmark Moths of; A Leopard Moth with Missing Spots."

Another extensively colour-illustrated article is "Sphingids in Photography" which illustrates 44 species of Tropical and Neotropical hawkmoths photographed alive in 53 coloured illustrations.

The start-up volume 1, as well as shorter articles on new species and life-histories, contains an interesting account of Lepidoptera collecting in Taiwan; the butterfly fauna of Rondonia (1500 species inhabit a few square miles!); photographing butterflies in Morocco and the ecology, life history and conservation of the Homerus swallowtail, which is the largest and most endangered (habitat destruction as usual) of the swallowtails and is confined to three small areas in Jamaica. All these articles of course with numerous coloured illustrations. all issues indeed contain something to suit all tastes.

While it might be thought that £15 is a high subscription price for only two issues per year, remember that this is an A4 size journal, so 84 pages are the equivalent of 168 A5 pages which represent a good half of most British (and other) journals' yearly output, many of which have a higher subscription charge and in twenty-five years none of them has had as many colour illustrations as this one issue before me. Highly recommended to all who have the slightest interest in Lepidoptera, natural history, visiting Butterfly Houses, or who just like looking at coloured pictures of the extraordinary variety of form and colouring that occurs amongst the Lepidoptera.

In view of the high commission charged by banks for forwarding small sums in foreign currency, the American publishers of this journal are prepared to accept subscriptions in banknotes of the subscriber's currency. The rates are US\$25, E£15, FFR150, DM45, NT\$750, Y4000.

Brian Gardiner

## PURPLE AND WHITE-LETTER HAIRSTREAKS IN NORTH WARWICKSHIRE

by Brian Mitchell (8068)

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Following my article in the April 1991 *Bulletin* concerning, among other things, first records of Purple hairstreaks at two of the three WARNACT reserves (and SSSIs) in the Borough of North Warwickshire during 1990, my searches this year, 1991, have turned up further sites and I now believe that this species is widespread and frequent to common in the Borough. There are still, however, tetrads covering likely areas which need to be filled for the Survey. In *The Lepidoptera of Warwickshire, a Provisional List* by R. Smith and D. Brown (Warwickshire Museum, 1979) no 20th century records for the north of the county were noted. In the 1987 work, *The Lepidoptera of Warwickshire* by the same authors, none of the North Warwickshire 10km squares is filled, but two localities were found in SP29 in 1984 and SP39 in 1985. From 1989 further sites have been added.

Two observations which are worth recording and may stimulate further correspondence through these pages is that on 8th August, 1990 at one local woodland site, I encountered an individual nectaring on Hemp agrimony in a ditch at the wood edge dividing it from a field. I had heard of White-letter hairstreaks being recorded on this wildflower in Derbyshire (via Ken Orpe) but never Purple. Indeed, the *Volume 7 (Part 1)* of *The Moths and Butterflies of Great Britain and Ireland* (Harley, 1989) states that the species does not take floral nectar. I am aware of reports of it seen nectaring on thistle species and bramble but generally there is a dearth of information in the entomological literature, much of which I have searched, although pre-1980 bulletins, magazines and journals may provide further records and notes. It probably utilises a wide range of available nectar sources which are suitable and I would be pleased to hear of other wildflowers from which it has actually been observed nectaring to add to the following recent experience of my own.

On 30th August, 1991, whilst tapping a stretch of Snowberry along the drive of the local church to determine how many Holly Blues were present, I disturbed a Purple hairstreak which flew out and then settled on a leaf. I watched it crawl from there to a partly-opened bud and proceed to nectar. Mature oak and ash line the busy B road nearby but I had not recorded the species at the location before, although further sites in the parish had been noted this year to add to the first records in the local wood in 1989.



White-letter hairstreak, of course, is known to nectar and recent books and entomological journals have recorded nectar sources. Jeremy Thomas in his latest work, *The Butterflies of Britain and Ireland* (Dorling Kindersley, 1991) mentions privet and creeping thistle and other summertime flowers, whereas he is silent on the nectar sources for Purple hairstreak. Although, like the Purple hairstreak, there are 19th century records of the species occurring at one site in the north (listed in the Victoria County History), no sightings appear to have been made until 1990 when Brian Kingston, the Hon. Head Warden of Ladyalk Nature Reserve, was convinced he glimpsed one in the wooded area where Purple hairstreaks were first recorded in 1984. The presence of the species was confirmed by me on 13th July 1991 and many subsequent sightings were made in the vicinity by different observers through to 20th August.

This first possible colony in the Borough was a notable highlight of the first year of the Survey, 1990, but towards the end of the year a report of White-letter hairstreak came to me via Roger Smith, the County Butterfly Recorder, who had spoken to the observer, Bill Bonham. He had noted one "about eight years ago" (i.e. about 1982) at a site "near Hartshill." This was the only certain 20th century record of the species at the time.

On 1st August 1991, I visited Hartshill Hayes Country Park and was rewarded with a sighting of a single White-letter hairstreak perched on a leaf half way up a small elm at about 10.00am in hot sunshine. The following day I returned with friends and found a specimen nearby in very good condition nectaring on creeping thistle. A return visit on 13th August brought a close observation of another rather the worse for wear also nectaring on creeping thistle, not far from the first sighting.

At a third site only about two miles from where I live, I observed through binoculars late on the afternoon of 3rd August, a single White-letter hairstreak flying around and settling on leaves high up on a small elm.

Three widely separated sites were, therefore, confirmed for this species in the space of three weeks (in the squares SP29 and 39) and I am sure that this butterfly, up to now regarded as absent or scarce in the Borough is, in fact, widespread but localised. I hope to locate further sites in 1992. Meanwhile, if any AES member has records of this or other notable butterfly species in North Warwickshire, I would be grateful for details. It is hoped that an interim report can be produced at the end of 1992.

## BUTTERFLYING IN SOUTHERN YUGOSLAVIA DURING MAY 1990

by P.J.C. Russell (8977)

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After coaxing my old VW camper for the best part of four days and over 1,600 miles, I reached Skopje in Macedonia on 30th April, having encountered rain, sleet and even a little snow in the mountains south of Belgrade, where the temperature at noon the day before had been only 10°C. I had been watching the temperatures reported for Yugoslavia's capital city for a couple of weeks prior to my departure and they had been in the upper 'teens and lower twenties, but things had obviously changed! As I headed west towards Tetovo the weather began to brighten up with a few short periods of sunshine; I pulled off the road near Grupcin at about 650m above sea level and wandered up a scrubby slope. Butterflies were sparse but I netted a few *Spialia orbifer* (Hungarian skipper) and a single male *Syrichtus tessellum* (Tesselated skipper), my only encounter with this very local species; other species found were *Lasiommata megera* (Wall), *Coenonympha pamphilus* (Small heath), *Issoria lathonia* (Queen of Spain fritillary), *Aricia agestis* (Brown argus), single males of *Lysandra bellargus* (Adonis blue) and *Scolitantides orion* (Chequered blue) and a few *Pseudophilotes baton* (Baton blue) and *Polyommatus icarus* (Common blue). As the sun disappeared for a longer spell I decided to beat a few of the small oaks (*Quercus* sp.) growing on a rockstrewn part of the slope; this produced only one recognisable larva, a third instar *Quercusia quercus* (Purple hairstreak). Unfortunately this was to perish as it got moved inadvertently too close to the van heater. I continued southwards to reach the campsite near Struga on the shore of Lake Ohrid by late afternoon and as the sky cleared spent a cold night in the camper.

May 1st dawned bright, the sun illuminating the snow-covered mountains of Albania on the adjacent western slope of the lake, the closeness of the snowline obviously accounting for the coldness of the night at 700m. I decided to head north down the valley of the Crni Drim which was fed from the lake and had been dammed in two places producing small header lakes feeding hydroelectric plants. I stopped at almost every place where it was possible to pull off the narrow road and made frequent forays up the rocky slopes. *S. orion* was common but rather worn, so, having potted up two different types of stonecrop (*Sedum* sp.), I placed them with two females in a net sleeve hoping for some ova. *Glaucopsyche alexis* (Green underside blue) was common and very fresh, *Celestrina argiolus* (Holly blue), *Callophrys rubi* (Green hairstreak), *Pyrgus malvae* (Grizzled skipper) and *Erynnis tages* (Dingy

skipper) formed the bulk of the butterfly fauna with a few *Pieris napi* (Greenveined white), *P. rapae* (Small white), *L. bellargus* *Lycaena phlaeas* (Small copper) and an occasional *Gonepteryx rhamni* (Brimstone) and *Iphiclide podalirius* (Scarce swallowtail). Two *Anthocharis damone* (Eastern orange-tip), both males, provided an exciting find and in a more open flatter area surrounded by deciduous woodland *Leptidea sinapis* (Wood white), *C. pamphilus* and *A. cardamines* (Orange tip) were common, and a single male *Hamearis lucina* (Duke of Burgundy fritillary) and a very worn *Carcharodus alceae* (Mallow skipper) added to the list of species for this locality on an increasingly cloudy day.

The following morning was dull and I drove eastwards over the Bukovo pass stopping at the summit (1,190m) but failing to dislodge a single butterfly from the slopes in the very cold breeze which was blowing from the snow-capped Albanian mountains in the distance. I turned southwestward from Resen and as I reached the mountains of Galicica Planina National Park between Lake Ohrid and the even higher (850m) Prespan Lake the weather improved and I spent the afternoon on the flower strewn slopes at about 1,300m. I was rewarded by an abundance of species: *A. gruneri* (Gruney's orange-tip), *L. duponcheli* (Eastern wood white) and *Plebicula dorylas* (Turquoise blue) were fresh and plentiful, *P. napi*, *P. manni* (Southern small white) and *P. ergane* (Mountain small white) were flying in some numbers with *P. baton*, *S. orion*, *C. rubi*, *A. thersites* (Chapman's blue), *G. alexis* and *I. lathonia*. A few male specimens of *A. cardamines*, *C. osiris* (Osiris blue), *C. Orientalis* (oriental marbled skipper) and *M. phoebe* (Knapweed fritillary) with the occasional *Papilio machaon* (Swallowtail) and *I. podalirius* flying swiftly along the slopes in company with *Colias croceus* (Clouded yellow) and *C. alfacariensis* (Berger's clouded yellow) searching for mates produced a memorable afternoon.

The following two days were spent on these and the lower more wooded slopes in ideal butterflying weather. On the lower slopes at about 900m *L. phlaeas*, *Heodes tityrus* (Sooty copper) (males), *L. megera* and *L. sinapis* were flying and on the upper slopes *L. bellargus*, *C. minimus*, *Cyaniris semiargus* (Mazarine blue) (a single male) and *M. cinxia* (Glanville fritillary) brought the number of species seen at this locality to 36, a very respectable total for such a small area in early May. On inspecting the potted stonecrop that evening I found that the *S. orion* females had obliged with a copious supply of ova, greenish blue and well camouflaged against the succulent leaves and stems.

On the following day (5th) I drove eastwards over the Djavat Pass following the old road, now virtually unused except for the logging trucks, and stopped near a steep bank covered in thyme at about 900m.

On the following day (5th) I drove eastwards over the Djavat Pass following the old road, now virtually unused except for the logging trucks, and stopped near a steep bank covered in thyme at about 900m. Among some *P. argus* (Silver-studded blue) I was rewarded by the sight of a male *A. anteros* (Blue argus) — a very early date for this species which is usually encountered in June or July. I also noted an abundance of *E. tages*, a few *P. armoricanus* (Oberthur's grizzled skipper) and a single *P. aegeria* (Speckled wood). I continued towards Prilep and, requiring petrol, entered the town; as I parked near the central square some large canvas topped trucks caught my eye. Their owners were selling lumps of dirty white material to the locals, who were arriving with their wooden wheelbarrows, receiving weighed amounts of this commodity and trundling off. It did not look like crystalline salt nor shiney marble; finally curiosity got the better of me and I managed to convey my enquiry to one of the vendors. He dispatched his "lad" with an empty sardine can, retrieved from the copious piles of rubbish litter in the square, towards the fountain in its centre. On his return he placed some small pieces of this chalky looking substance, holding it with thick rubber gloves I noted, into the water. As I watched it fizzed and bubbled — memories of the school chemistry lessons returned. Of course . . . quicklime! My curiosity and petrol tank satisfied I drove off out of town towards Pletvar Pass; I had learnt from two German butterflyers encountered the day before that the *Elphinstonia charlonia* (Greenish black-tip) could be found there. I parked in an old quarry at the top of the pass (990m) and spent most of the early afternoon rushing up and down steep boulder-strewn gullies in the sunshine chasing anything pale yellow. The result of this was a few *C. alfacariensis* males, bruised ankles and aching legs! I returned to the van for sustenance and saw the only *Aglais urticae* (Small tortoiseshell) of the trip feeding on thyme, which was so extensive that despite much activity my trainers smelt quite fresh by the end of the day after their soaking in its aromatic oils.

Whilst quenching my thirst, I decided that a less exhausting method should be employed for the remainder of the day and after a short search I found a track which appeared to lead up the mountain at a more respectable angle. As I gained height the narrow track, which was bordered by many flowers, crossed some of the gullies up which I had been frantically scrambling earlier and many more butterflies were recorded including *A. gruneri*, *P. ergane* (Small mountain white), *L. duponcheli*, again in some numbers, with a few *I. lathonia*, *M. cinxia* and *P. dorylas*; these latter were very lightly marked on their undersides, the orange sagittate marks on the hindwings being almost imperceptible and grey in colour in some male specimens. As I reached a flatter section of the track near a gully at about 1,150m, I spotted a smallish very pale green butterfly feeding motionless on a flower head. I netted my first *E. charlonia* — a perfectly fresh male. My informants had been correct! On



Galacica Planina, Macedonia. The road from Otesevo winds up and over the Pass towards Ochrid. Here at 1,250m *L. duponcheli* and *A. gruneri* abounded in early May.

the way back down the track I noted single males of *C. minimus* and *M. phoebe*. Having driven on to Gradsko and found both motel and campsite closed down, I was forced to turn southwards and motor on to Negotino for the night; a clean, well-equipped but small site busy with caravanners heading to and from Greece.

I returned by a shorter route to the Pletvar Pass and spent the next morning walking the track in bright sunshine netting no new species but taking another fresh *E. charlonia* — a female this time. In the afternoon I drove back down the pass and pulled off the road by a bridge over a deep ravine, with sloping slab sides providing copious flower covered ledges. These yielded some more *M. phoebe* and a few *P. mannii*, *P. ergane* (Mountain small white), *S. orion*, *A. thersites*, *P. armoricanus* and a single male *H. tityrus*. On my return journey to Negotino I noticed some “whites” flying over a wide flowery road verge near Kavadarci at about 400m. These proved to be *Pontia daplidice* (Bath white) with a single *Euchloe simplonia* (Freyer’s dappled white) apparently of the second brood, being large with the underside of its hindwings having pale greenish yellow markings with matt white spotting; both were first sightings for the trip.

May 7th was bright and sunny. The air was much warmer now and by 09.00 hours it was hot as I quartered the terraces of what had probably been an old vinegrowing slope at about 450 - 500m, on the road east out

of Negotino over the Konecka Planina. The stony terraces were covered in thyme and a purple flowered milkvetch (*Astragalus* sp.) both very attractive to the hoards of skippers and blues which darted about barely rising as they moved from flower to flower. Species new to the trip were *Limentitis reducta* (Southern white admiral), *P. sidae* (Yellow-banded skipper), *P. serratulae* (Olive skipper), *P. pylaon* (Zephyr blue) which were very variable in size, and a single female *L. maera* (Large wall brown). In the valley below it was much grassier with bushes and a few oak trees (*Quercus* sp.) and here *M. cinxia* and *M. phoebe* were common along with many *P. icarus*, *A. thersites* and *L. bellargus*. The presence of many *E. tages*, *P. malvae* and *S. orbifer* obviously made the terraces a positive haven for skippers. As I returned to the camper to stow the catch I brushed past a bush and disturbed a small brown butterfly which to my surprise proved to be a male *C. leander* (Russian heath) and on returning to this immediate vicinity later, I flushed a further two from the low bushes; previously in the open grassland only *C. pamphilus* had been seen.

I drove further up the pass and finding another parking place at about 600m, set off into some sloping meadows. Once again *C. pamphilus* was common and many more *C. leander* occupied the lower parts of the bushes around the edges but still only males were found. A single male *Iolana iolas* (Iolas blue) was taken as it flitted round an isolated bladder senna (*Colutea* sp.) with a few *C. rubi* on the neighbouring broom (*Cytisus* sp.). On the following day a male *Aporia crataegi* (Black-veined white) was added to my list and a large female *P. machaon* brought the total number of species recorded at this locality to 32 and after two idyllic days on the Konecka Planina, I headed off south towards Lake Dojran near which the map had indicated a campsite. I had almost reached the end of a narrow lane leading to the site when I was waved down by a Dutch couple approaching in their motor home — the campsite had closed down (a common feature in Yugoslavia apparently!). We both headed for the border with Greece only a few miles away and luckily found a new motel and campsite. The latter was closed, with no running water, but we opted to spend the night there anyway rather than go on in darkness.

With the recent thaw in East-West relations, I intended to return home via Bulgaria, Romania and Hungary. I set off with the minimum of delay at the border across the northernmost part of Greece to the Bulgarian border at Kulata, where despite the almost total lack of traffic crossing, the obligatory lengthy wait followed. A young lady appeared from the interior of the building and I was surprised when she spoke to me in English, albeit not fluent. It transpired that she was an agricultural graduate from Sophia and enquired the reason for the array of plants in my van. (I often take a few potted foodplants on my trips in order to

collect ova and this time they ranged from *Aristolochia* sp. to *Iberis sempervirens*.) Satisfied by my explanations and having changed some money, purchased my petrol coupons and received a warning from her to change money only at banks (and not on the black market — still a criminal offence in Bulgaria!), I set off towards Sophia in cloudy but dry weather.

On my drive northwards I realised that I had entered a different world; farmers were using single furrowed wooden ploughs pulled by any animal strong enough to do so, from oxen to mules and even men themselves, the women sowing by broadcasting the seed from open flat reed baskets, and the single tethered cow or pig. It was unbelievable . . . was I still in Europe? I now realised why the lady at the border had been given the mundane job of selling petrol coupons. She had probably been taught the theory of modern agricultural technology with which we are familiar but this would have been totally useless to the peasant farmers, who had nothing but the most primitive of tools to work with. By mid afternoon it was still overcast and despite a few forays into meadows along the roadside I had not seen a butterfly. I pulled into a campsite — I use the word in its loosest sense, for it consisted of a rough sloping field with a few old wooden chalets and a toilet block the like of which I had never seen before, nor want to again! Reception was deserted but I made enquiries from the only other resident, a local man whose only companion was a barking, uncontrollable Alsatian dog with an obvious taste for human flesh, and was informed that it would open in the morning; not that long before mid-day as it transpired!

I was joined on the site by a couple of Dutch lads in a diesel landrover and having exchanged some of my instant coffee powder for which they were desperate for some wine, we passed the evening chatting. They had spent the previous two weeks touring the Transilvanian Alps and had some marvellous anecdotes about the problems they had encountered in Romania. They considered that Bulgaria, which I had thought to be the most primitive place on earth, was paradise compared with the conditions in Romania. The conclusion to be drawn from our conversation was obvious: unless one had a diesel vehicle which could store enough fuel to get across Romania, it was courting disaster to enter. I did not have such a vehicle!

The following day I was determined to make the most of my visit to Bulgaria. I continued my northward progress and, skirting Sophia, took the road towards the Petrochanski Pass (1,448m). I needed to exchange some of my petrol coupons; I passed by two closed stations, outside of which driverless vehicles were queued and towards the ends of which other vehicles were being towed by mules. Obviously Bulgarian vehicles did not have the luxury of a petrol gauge or had drivers who were over-

optimistic about their petrol consumption! At the next station after a wait of fifteen minutes or so, my tank was full of their finest fuel, 84 octane. Thank goodness the old VW is not fussy! As I climbed the pass both the weather and the road surface deteriorated — neither of which had been exactly good since arriving in Bulgaria. It started to rain heavily, turning to sleet and finally to snow as I gradually wound my way higher. By the time I reached the summit my camper was becoming a little unstable in the inches of slush on the road. The campsite marked on my map was not visible and the temperature was not far above freezing; not really what one might call ideal weather for butterflies! I decided that enough was enough; I had not been able to buy even the basic commodities of bread or milk from either shop or market, so I retraced my steps down the pass and back to the ring road around Sophia and headed northwestward back towards Yugoslavia and hopefully better weather. The motel and campsite some three miles short of the border were open; I was badly in need of a hot shower and, since the camp washroom was not functioning, I opted for a chalet.

I left for the border early the next morning (11th May) and on reaching it was confronted by two long queues of vehicles waiting to cross. About half-an-hour later I had inched forward to about three car lengths and the weather was brightening up. But just as I was getting bored, a uniformed female walked down the line of vehicles, noticed me in a right-hand drive vehicle and looking somewhat aghast at my presence there, shouted . . . “English?” I nodded affirmatively and as I was beckoned out of the queue and into a completely empty lane leading to a fully manned passport control kiosk, I observed in my mirror complete chaos in my wake as other west Europeans jostled for position behind me. My spirits were high as having avoided, albeit unwittingly, a long wait, but as I rounded the bend in “no man’s land” they were dashed by the sight of not two, but three even longer queues than those I had just left. I slowed down looking for an empty lane with an operational kiosk, but we were all “foreigners” here of course, and I pulled in behind an Austrian gentleman who had just passed me in his Mercedes. He was obviously a businessman as he frequently looked at his watch impatiently and cursed (that he wasn’t going to make Vienna by lunchtime perhaps?). The queues were incredibly slow moving. Every vehicle was being emptied of occupants, baggage and all, and then being thoroughly searched — it was going to take ages I thought. I made myself a cup of coffee and watched some impatient Germans trying to squeeze into what might have been a slightly faster moving queue. After an hour or so I was watching an argument develop between an extremely large Bulgarian lady, who had squeezed out of a very small local car, and an unusually small vociferous German from a huge Mercedes who had been easing





Plitvice National Park. The footpaths follow the lakes and waterfalls very closely.

across her bows. All of a sudden the Austrian leaped from his vehicle, strode up to the prospective combatants and delivered a tirade, which had the effect of a large bucket of iced water on quarrelling cats, both parties returning to their vehicles.

The Austrian did not. He strode on towards the barriers and up to a Yugoslav border guard, who, oblivious of the adjacent fracas, was nonchalantly taking the air and observing what was by now becoming a brilliantly sunny day. He physically escorted the guard over to an empty lane with a closed barrier and said to him (it was so obvious from his gesticulations) that unless he inspected his passport and those of his compatriots he was going to drive through the barrier and the guard could do as he wished. Oops! I thought, this could be big trouble, as I waited for the guard to draw his pistol and assert his authority. But no — the Austrian strode off unchallenged back to his car, the flabbergasted official opened the barrier, sat down outside the kiosk and awaited the arrival of the Austrian who, beckoning the others to follow, eased his way out of the queue and over to the empty traffic lane. I stuck to his bumper like glue and with the guard's cursory glance at my passport I was back in the West. The Austrian pulled in at the Duty Free Shop (commonplace in Yugoslavia — not only at borders but in most towns

and even in isolated hotels). I followed and enquired of him the cause of the Bulgarian lady's frustration. He replied that those towards the front of the queue had been in "no man's land" for two nights and that she was in no mood to be queue-barged. As I drove off I reflected that my mistake had been to use a border crossing on a road out of the Bulgarian capital heading towards the West and freedom. The two days spent in the East had given me an insight into the sort of life the population had had to endure and as I headed off towards Nis, I wondered how many of those I had overtaken would still be queuing there that night surrounded by barbed wire and watch-towers with no food, toilets or other facilities of any kind, just waiting to "escape" to an uncertain future in the West.

It was well after mid-day when I stopped at the first good looking butterfly site, some open grassy slopes, rocky at the top but bushy lower down, on the banks of the river Nisevo, just east of Bela Palanka (Serbia), at between 300 and 400 metres. *M. cinxia* were quartering the flatter ground and *Plebejus argus*, *P. icarus* and *S. orbifer* fed on the patches of thyme. Some larger skippers, later identified as *P. carthami* (Safflower skipper) and a single worn male *Beloria dia* (Weaver's fritillary) added to my list of new species seen and as I added a third, *Erebia medusa* (Woodland ringlet), I felt fully revived by the sunshine and the sight of butterflies again! *C. alfacariensis* and *C. croceus* were common here with *A. thersites* and *C. leander* again being found in the immediate vicinity of bushes.

Higher up the grassy slopes near two isolated bushes I took my first and only female of the species in company with a number of males. On further inspection of the blues feeding at the clumps of thyme I noticed that some were larger, of a brighter blue and had narrower black margins to their wings than the *P. argus* males; these proved to be *Lycaeides argyrognomon* (Reverdin's blue) having less sagittate black edges to the pale orange yellow lunules on the underside of their hindwings.

(to be continued)

### RE-CYCLED MOTH

Our printer, Norman Cravitz, has sent us a sheet of "Envirocote" recycled paper which incorporated in its substance a very flat female moth. Identification under such circumstances must be tentative rather than positive, but it is certainly one or other of the *Scopula* genus Waves, either the Cream, Lesser cream, or Smoky.



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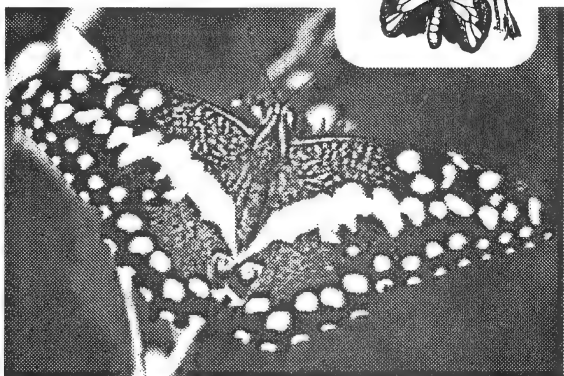
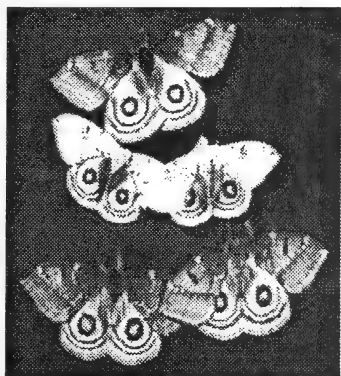
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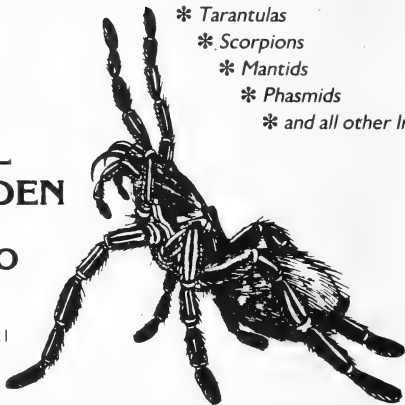
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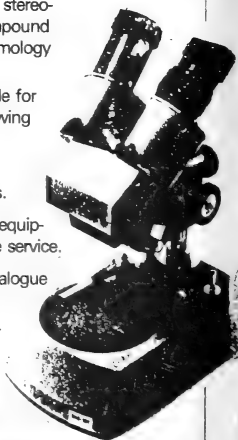
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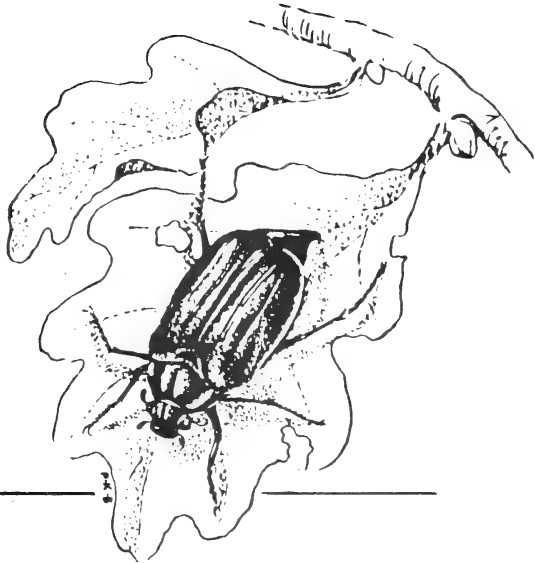


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## NANCY CRIBB

Members will be saddened to learn of the sudden and unexpected death of our Registrar on 18th March.

For many years Nancy has been the mainstay in the efficient running of our Society and she is going to be greatly missed by all of us. To Peter and family we extend our deepest sympathy.

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## EDITORIAL

My editorial in the *Bulletin* last June created a considerable interest and in this issue we print a number of the communications received. These clearly represent the views of the more concerned members and although they are printed mainly in full, it must be distinctly understood that they represent the views of those writing them and are not those of the Society or its Council.

I am inclined to wonder if so much of the crime and vandalism that occurs today is not the result of the youngsters committing it being influenced by the appalling "Official Vandalism" that they see around them wrecking their environment. In spite of properly constituted democratic protests and votes, so often the overwhelming vote of objectors to some "scheme" or other is over-ruled by officialdom and another piece of the countryside is made an uninhabitable eyesore. How right was Mr Ripa de Meana to castigate and take action against our Government for its appalling decision to destroy Twyford Down and Oxleas wood.

I am most alarmed too by the granting of public funds in East Anglia to "improve" derelict sites. Derelict and overgrown they may be but they are also a haven of wildlife and an area where youngsters can perhaps play and enjoy themselves without causing a nuisance or do any harm, except perhaps to themselves, as has always been the case. To "tidy up" these areas is in most cases extremely short-sighted of the politicians and deprives many of the enjoyment they were getting out of them.

When roads and other development is being planned it is axiomatic that the land required, if not already in use for some other purpose (i.e. it has a house on it) is declared "waste" and costed minimally. In fact such land is now so scarce that a true costing should be that of office land in central London: several million pounds the acre. To cost it as such, which from a wildlife habitat point of view is its true value in view of its scarcity, would be so horrifying to the Developers that said development would never take place and the SSSI would be left for people to enjoy as a wildlife habitat where butterflies, birds, badgers etc. could be seen, photographed and enjoyed. Had its "scarcity and amenity value" been taken into account, as it should have been, it would in fact be cheaper to tunnel through Twyford Down.

The Royal Society for Nature Conservation wants the widening of the M25, which will damage or destroy 81 wildlife sites including 47 ancient woodlands (Epping Forest included) and ten SSSIs, to be scrapped. The present widening of the A1 is causing appalling environmental damage. Wildlife sites, houses, historic buildings, new buildings; ruination of the comfort of those formerly living just off the existing road. All must give way to this immense scheme pressed onto the Government by the Road Lobby just at a time when cars are being restricted in cities and a move back to rail is on the cards. Then with infinite cheek it is also proposed to build a paralalled A1! (The East Coast Motorway.) Goodbye Chippenham Fen as well as some 50 other SSSIs and "protected" sites!

As a by-product of the roads, quarrying their material has already destroyed hills, caves, woods, prehistoric sites and watercourses in Somerset. Another factor that should be taken into account when such wide roads are built is that they act like the former Berlin Wall, it being well documented that fragmentation of a habitat prevents cross-breeding and re-stocking since a number of species (e.g. Meadow brown) are not even capable of crossing a smallish river. Thousands of animals, including pedestrians, are killed crossing roads and common sense now demands that many cuttings should be covered over for much of their length so that animals may safely be given access to both sides of the "wall".

The gullery on Scoulton Mere provides an excellent example of how legislation can wipe out a "Collected" species. It is documented that



since about the time of King John some 20,000 eggs a year were harvested and sold as a breakfast delicacy. In the 17th century the then owner even protected the site with a bank to prevent excessive drying out. Came the protection of birds Acts which made it illegal to harvest the eggs and since the locals no longer had a pecuniary interest in it the Mere became neglected, overgrown, vandalised, dried out. The final straw was when a party of Cambridge students, doing some research project in the area, decided to camp on the nesting site. Fini! Moral: if locals can make a profit from harvesting wildlife they are not going to destroy the seed-corn and will always ensure that the population and its habitat flourishes.

While there will always be irresponsible people who will spoil it for the rest, they are not going to be deterred by legislation as is already indicated by the massive shooting of, and capture of, wild birds and other animals that takes place in spite of the law and heavy penalties that can be imposed. It is also quite clear that with up to 90% of many habitats having been destroyed during the past forty years, we can no longer afford to sacrifice *any* of the remainder for any reason whatsoever and to restrict responsible entomologists by legislation while allowing free destruction of habitat is hypocritical in the extreme.

## LETTERS TO THE EDITOR

Dear Brian,

### **The Collecting, Breeding and Sale of Butterflies**

As Director of Butterfly Conservation, whose internal debate about "butterfly collecting" has set a few hares running in the entomological community, I would like to put matters straight on this subject, so that the discussion between the various interest groups (who have in common something very important, namely the love of butterflies), can move forward on a more factual and rational basis.

Before so doing, perhaps I should establish my own *bona fides* as a member of the AES for much longer than I have held my present position, with friends who are officers of the Society and a great deal of respect for other distinguished members. In other words, I am not a rabid "anti" with no knowledge of or respect for the issues. Butterfly Conservation is close to producing a definitive policy document on the heading subjects, but not yet, so the views which follow should be treated as my own.

With reference to your editorial in *Bulletin* No. 376, the desire to license breeders does not spring from "the belief . . . that dealers are continually catching and selling the offspring of butterflies." It arises much more simply from the knowledge that many butterfly populations

in this country have declined to such comparatively miniscule and precariously-balanced levels such that any disturbance is dangerous to their continued survival in the wild. Even the possibility that people might be catching and selling wild butterflies — and we do have evidence that this is occurring — is a threat (amongst others) to the remnant populations of British butterflies, and some form of control is necessary.

Before anyone pooh-poohs this contention, let me say that everyone recognises that the prime cause of these losses is habitat destruction, as most of the published output of Butterfly Conservation bears witness. Yet the claim of farmers, foresters and developers — the principal culprits behind this devastation — has always been “this little bit won’t make any difference”. “Collectors” — the fourth force — should think twice before employing such arguments, which have been proved horribly wrong.

Let us also lay a couple of ghosts: in the past collectors and dealers have without any doubt whatsoever been responsible for the disappearance of butterfly colonies — for just one example read Dr J.A. Thomas’ chapter on the Large blue in *Butterflies of Britain and Ireland* (Dorling Kindersley 1991). By the same token, the burden of proof lies not with conservationists to prove this contention, which has a natural logic, but with collectors to prove that their activities do not harm butterfly colonies, a claim which is on the contrary quite counter-intuitive.

More worrisome is your implied contention that breeders/dealers do not “refresh” their genetic stocks with wild-caught butterflies. We would strongly refute this, whilst accepting that a few experts can and do maintain captive colonies without so doing. The pleas for understanding from those who maintain that they return more stock to the wild than they take are also well taken. If this is the case they would, I believe, have little to fear from any licensing system that might come into force (see below).

Moving to the wider issues, we ought to start with a definition of terms. The heading of this letter contains four key words:

*Butterflies* — Let us be clear that we are talking about butterflies and not any other insect, animal or plant, where circumstances may be quite different.

*Collecting* — The catching and killing of butterflies (a) for *bona fide* research and (b) for its own sake. Who can disagree in the face of the horrendous decline of our native species that a regulatory framework is needed? The definition of research is a grey area on which Butterfly Conservation would take a hard line — collecting numbers of wild eggs for the sake of finding variations is of extremely dubious validity for

example. Similarly, butterfly identification rarely if ever necessitates the death of a specimen. Members of Butterfly Conservation would also argue that the collecting of wild butterflies for the sake of it is inappropriate in today's circumstances, and that of protected species quite unacceptable, but there are few who think a comprehensive legal ban is the answer — yet.

*Breeding* — Keeping and reproducing butterflies in captivity is a completely separate issue. Butterfly Conservation believes as you do that *bona fide* and expert breeders have a real contribution to make to conserving our native species both by helping with research and re-establishments, and by satisfying the requirements of researchers and even the demands of those who just cannot forbear from killing these insects for the pleasure of owning a collection. Ideally we should like to see a self-regulated professional body for butterfly breeders, and indeed would work closely with such an organisation if it ever came to be. In the absence of such however, we would argue for proper licensing and supervision for those who want to breed protected species. *Bona fide* breeders, and I am personally acquainted with several, have nothing to fear, only a great deal to gain from regulation, which would only affect those who believe they can do as they please, without acknowledging the need for conservation. The answer is, as always, to get the house in order, or someone else must.

*Sale* — following on from the above, there is in theory no objection to the sale of livestock by *bona fide* breeders i.e. those who observe the law. The difficulty lies in ensuring that such activities in practice are legal and above board.

I hope this letter goes some way to allaying the fears of those who think there is a plot afoot to stop butterfly enthusiasts from pursuing what they see as their legitimate interests. There is not: there is only a movement dedicated to saving wild butterflies and their habitats, for all of us, our children and others yet to come. The principal ways in which this might be done are habitat conservation, a return to environmentally-sound land use, research and re-establishments; but entomologists, breeders and collectors must also recognise their responsibilities. The aim for all of us must be to restore butterflies to the profusion which they and we once enjoyed. Butterfly Conservation would welcome any members of the AES who are not already members to join with us in working towards this goal. Yours sincerely, Andrew Phillips, Butterfly Conservation.

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Dear Sir, I completely agree with the sentiments and ideas expressed in your editorial in *Bulletin* No. 376. It stated that the Department of the

Environment was under "great pressure" to ban the captive breeding of 22 species of butterfly. What I would like to know is this: who is applying this "great pressure"? — certainly not anyone with any knowledge of butterflies! It can, indeed, be only the "ill-informed" few mentioned in the editorial.

The trouble is that there is such antipathy generally towards collectors and dealers fostered in the media by "big business" conservation bodies such as the RSPB and WWF that the "ill-informed" who come up with such hare-brained proposals tend to be those who will respond to any little bit of propaganda thrown their way.

Newspapers and television do not help to propagate the truth either. Few reporters or programme-makers are knowledgeable about natural history (and the general public certainly aren't) so you have a situation arising where a few determined activists can manipulate the media to arouse hostility towards the collector. Newspapers or programme-makers cannot really be blamed for they don't know any better and are all too ready to respond to the pleas of those who want publicity for what appears to them to be a "good cause".

We would do well, however, not to underestimate the power and determination of such activists. Consider the fact that less than forty years ago, collecting and dealing in wild birds' eggs was not only legal, but considered eminently respectable, with many clergymen, doctors and even titled people keen collectors. Now such people are openly called "perverts" by the RSPB's spokesmen. Forty years ago the RSPB had little money and no legal power — now they have an annual income of over £22 million and employ over 500 full-time workers on the 100 or so reserves! They have succeeded in arousing public hostility towards collectors, cage-bird dealers, falconers and almost anyone else who they don't see eye to eye with!

It is interesting to note that egg collectors, bird dealers, falconers and taxidermists have all adopted a policy of appeasement towards the protectionists. However, having been given an inch, the latter always proceed to take the proverbial mile and persecute the appeasers with the unbelievable ruthlessness and vengefulness associated only with the personal vendetta!

Let us not, therefore, make the same mistake where our butterflies are concerned! We must be prepared to use the media to foster *our* interests — for after all, we the breeders and collectors are the people who *are* truly informed. It is time for us to state our case vigorously and vociferously to counter the many half-truths and downright lies propagated by the "ill-informed".

We have to be prepared to fight our case tooth and nail or we may soon find *our* activities classified as illegal, for make no mistake about it, this is the ultimate aim of the activists! We must not fall into the trap of trying to appease them in the hope that they will leave us alone. They won't!

Many of you will be familiar with the story of the keen protectionist whose friend was an avid butterfly collector. Discussion between the two over the potential damage caused by collecting got so heated at times that eventually a wager was made. The protectionist had made the statement that collecting was responsible for the extinction of many butterfly colonies up and down the country. His collector friend stated that it was impossible to wipe out a colony of butterflies purely by collecting. The bet was this — that the protectionist would try to wipe out a small and completely isolated colony of a common butterfly (Grayling). If he succeeded, he had proved his point and the colony could always be reinstated with fresh stock from a different site. For a period of eight consecutive years the protectionist caught and killed every single Grayling he could find on the site. At the end of that period he admitted defeat and also admitted that the butterflies were actually more numerous than when he started his operations! The admission, however, was a private one and in public he continued to actively maintain that collecting devastated butterfly populations and had been responsible for the demise of whole colonies!

Now, while I wouldn't want to comment on the ethics of this experiment or to condone it in any way, it does seem to suggest that the effects of collecting on butterfly populations are greatly exaggerated by those who, for their own reasons, would like to see it made illegal.

The point I am trying to get at is that whenever we see some misguided statement by one of the "ill-informed" protectionists or so-called "experts" we must be prepared to challenge it or suffer by default. We should not be intimidated by the fact that these "experts" are supposedly highly qualified. Recently I read a report compiled by two such people, each with a doctorate degree after his name. Their task was to help to save a piece of land and to have it designated as a local nature reserve. They called themselves "environmental consultants" and offered their services to local natural history societies (and anyone else who would pay them) to assess any area and compile a list of the species to be found there.

I was appalled when reading the finished report (a fairly lavish and very authoritative-sounding document) to find that many of the species they had "found" on the couple of acres of land had not only never been recorded there before — in spite of many years of exploration by local

naturalists — but hadn't been recorded anywhere else in Scotland before either! They succeeded in finding several species of winter moth never before recorded in Scotland — a truly remarkable feat, especially in view of the fact that their "exhaustive" survey took all of one afternoon in mid-summer! Still, someone somewhere in fifty years' time, perhaps researching into the "extinction" of species by collecting, will no doubt come across this imposing document and proclaim with the same authority as its authors that these winter moths were once common on the site but have now become extinct, probably due to collectors! By the way, the compilers of the report (botanists, I understand) didn't think to consult the local naturalists who had studied the site for many years. Some of them were very expert entomologists and could easily have supplied them with a genuine list of what was to be found there, which would have prevented them from going to the trouble of concocting a fictitious list based on what they thought could be found in similar types of habitat in England.

Since I have written of publicising the positive aspects of breeding and collecting, I might as well practice what I preach and leave the reader with one practical example of the value of breeding before I close. It is an example which will be familiar to many collectors and breeders all over the country.

A friend who now collects only aberrations, some years ago captured a single female Adonis blue from which he hoped to breed some aberrations. Now, as we all know, aberrations occur only once in a blue moon and he has, in fact, bred and released literally hundreds of Adonis blues back into the original locality without ever having pinned a single specimen — and he still continues to breed them in the hope that the elusive aberration will eventually be "thrown up". The fact that he has strengthened the existing colony with hundreds of released specimens each year can only be good, for as the "well-informed" know, populations in the wild are susceptible to fluctuations due to predation, weather and many other factors. Are we to believe that this form of collecting is in some way reprehensible? I think not! Let us therefore seek to challenge rather than to appease the "ill-informed". Remember what Churchill said about appeasers — that they are those who try to feed the crocodile in the hope they may tame it, only to find themselves being gobbled up! Yours faithfully, Mark A. Hope (8139).

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Dear Mr Gardiner, The last two editorials in the AES *Bulletins* (Nos. 376 and 377) point out the difficulties of the Wildlife and Countryside Act 1981 (which came into effect on 20th September 1982). Every

organisation concerned with wildlife gives its own "interpretation" of the Act. Every one of these should be relegated to the waste-paper basket, including that by A.E. Stubbs of the NCC (pages 147-9 *Bulletin* No. 377).

Anyone who studies the Act, which is obtainable from bookshops which sell government literature, may see the conditions and regulations for themselves.

Examples may be given to show the nature of the various "interpretations". The RSPB indicted a man (through the Procurator Fiscal) in Scotland for photographing a Schedule 1 bird, in this case a Peregrine, without a licence. I proved that a licence is not necessary to photograph such a bird, but that the licence was to disturb a bird while photographing it". I showed also that the photographer did *not* disturb the bird at the nest but that the disturbance came from a busy-body screaming at the photographer. The Sheriff found the case not proven and the photographer was discharged.

Again, in a court at Llanfair ym Myallat in Wales, three persons were found by police to have Schedule 1 (and other) birds' eggs in their vehicle, fresh and unblown. I proved that the men did *not take* the eggs and they were found not guilty of taking them, although they were in possession of them. It was a case of using the law to advantage.

As far as butterflies are concerned, only the following points may be taken into consideration:

1. Three species (known as The Three) may not be taken, killed or sold (including barter or exchange). Large blue, Swallowtail and Heath fritillary.
2. The 22 species on Schedule 5 may not be sold or advertised for sale.
3. Bird-wings, Apollo and Large blue may not be imported without a licence (which you will not get).

*All species* may be possessed, but, with The Three, the owner must prove that he had them before the Act (before 20.9.82) or that he acquired them as a gift from a person who had them before the Act.

*All species*, including The Three, may be given away *gratis* to anyone or receive them *gratis* from another person. (They must not be "swopped" as this is "barter".)

*All species* may be bred in captivity (including The Three but their parents must also have been bred in captivity).

It will be possible to beat any charge against you under the W & C Act 1981 if the following points are observed:

1. You are not caught with The Three in your killing bottle.
2. You answer *no* questions at all, apart from your name and address to a police officer in uniform. (Wildlife "officers" may be ignored.)

3. You make no statements at all to anyone, nor sign anything at all in connection with any "crime" you are alleged to have committed.

Stick to the above and I will guarantee you "safe collecting".

M.J. Dawson.

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The Editorial in the AES *Bulletin* No. 376 raises unnecessary alarm among those who enjoy rearing butterflies.

In a paper recently sent to the *Bulletin* I have outlined the legal position of species on Schedule 5 of the Wildlife and Countryside Act. Neither the Nature Conservancy Council, nor its successor bodies, nor the British Butterfly Conservation Society have sought a ban on breeding scarce butterflies in captivity. The pressure being put on DoE for such a ban, referred to in the Editorial, is either imaginary or will be readily countered by organisations such as those mentioned, and by the Joint Committee for the Conservation of British Insects on which our Society is represented.

There is concern over the DoE interpretation of the Act, stemming from the original drafting. If the trade in bred stock is to be monitored it is necessary for all wild caught butterflies connected with this trade to be subject to disclosure and licence provisions. This would include wild caught gravid females whose progeny can be currently sold without licence, and genetic top-up from wild caught stock. Bringing all trade in rare and scarce butterflies (including dead stock) under licence, seems the only expedient. There is likely to be growing pressure of DoE for such a tightening of the Act and this may in fact be the root of the issue that the Editorial had intended to address.

There needs to be a clear distinction between breeding for personal interest, and for trading (though sometimes one leads to the other). Both have the potential to be either harmless or harmful. There is a high level of personal responsibility and all elements of the entomological community will support those who are responsible. It has been certain elements of trading that have caused deep disquiet in many quarters, which must be addressed, but I do not detect any communal will to impose draconian bans on butterfly breeding as such. Alan E. Stubbs.

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Dear Mr Gardiner,

It was with some trepidation that I read your Editorial and following articles on Schedule 5 of the Wildlife and Countryside Act 1981 including Section 9 (5) in the AES *Bulletin* No. 377 pages 145-150.



My apprehension at attending the 1991 Exhibition proved to be well founded with hardly any British lepidoptera being offered for sale. There was even a very distinct lack of moths.

Although my friends and I enjoy looking at the exhibits that show the work and good fortune that fellow members have enjoyed, our main reason for attending was the hope that we may be able to obtain species of varieties that are not found in our localities.

As I have been fortunate enough to breed nearly all the British butterflies over the past ten years or so, I have a short series of each and was hoping to obtain some new aberrations, to add to the ones I have purchased at previous exhibitions and trade fairs.

Sad to say it was the very first time that I failed to find a single butterfly that I wanted. Judging from the numerous other entomologists clutching various shaped boxes I wasn't the only person hoping to purchase something interesting. Was everyone else as disappointed?

On checking previous purchases I find that well over 85% were collected at least 15 years ago with a very high number being 40 years old or more, time when for various reasons butterflies were more numerous, and so therefore were their varieties.

Under new legislation it is now illegal to sell a wild caught specimen of some 22 species but not illegal to catch them. So although I cannot buy a 40 year old example I can if I wish try to breed it in captivity, taking hundreds of living wild butterflies in the attempt.

I wonder which government-employed genius (no doubt paid by you and me) managed to come up with that masterstroke to assist conservation. No responsible entomologist nowadays would condone the wholesale slaughter for any reason (particularly monetary gain) of our dwindling insect fauna, and surely any specimen sold from old collections lessens the need to collect from reduced current populations.

Although I have a reasonably good collection I get an immense amount of pleasure from walking through clouds of living butterflies (an all too rare occasion recently). I would personally be quite happy to leave these just as they are, but now, if I wish to add to my assortment of aberrations from these 22 species, I have no choice but to collect wild specimens — a very strange state of affairs.

The minute they start mentioning licencing we know that restrictions will increase. For ten years I had a permit to study and collect butterflies from several Forestry Commission woods, but due to recommendations from NCC all permits were revoked for collecting, even including Meadow browns, Small heaths etc. No more common or widespread species exist in Britain to my knowledge so the message is very clear.

It is pointless to ban collecting when habitat destruction causes much more damage. I know that one man with a plough will destroy more butterflies in one day than I will in a lifetime.

I sincerely hope that the next review will amend the current abnormalities and permit the sale of old specimens, but as it took ten years to clarify the original rules I don't think I will be holding my breath. Yours sincerely, P. Tebbutt (7941)

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I'm just writing in with my opinion of the 1981 Countryside and Wildlife Act concerning the Heath fritillary and Swallowtail. It should be revised into a code of collecting aimed at anyone at the age of 20 or over because younger collectors don't know better but should be taught the best way to make a collection without large numbers of the same thing.

The fining system concerning the two protected butterflies should be lifted so that honest collectors who haven't got them can do so. Of course the greedy collectors will take advantage of this so to keep them in check it should be made illegal to collect large numbers of local species listed.

At present, in Societies, a code of collecting exists but is not made clear and should apply to everyone. Breeders should be allowed to take gravid females providing they're not an endangered colony and once again the Swallowtail should be taken off the protected list so breeders can catch one or two gravid females and the more there are breeding them, the commoner the species.

A dealer selling Swallowtails was fined, which was totally ridiculous. The dealers who wilfully catch vast numbers for selling are the proper targets and the only way to do this is to enforce a code of collecting, not ban the breeding or sale of butterflies as long as they weren't collected from the wild, so genuine breeders can make a harmless living out of breeding.

I have heard that the AES exhibition venue is heading for the rocks because of the banning of selling even bred butterflies.

The true way to collect is to have four of each kind — one male and 1 female topside and one each set underside; plus aberrants of course. Collectors should only be allowed to take four of each and all of the British butterflies including the Swallowtail and Heath fritillary, but once they possess them should then not take extra ones unless of course they're not noticeably varied.

The point I'm making is this. Replace the present 1981 law with a code of collecting but without it being illegal to take small numbers (four) of

all the British butterflies (with a warning for “greedy collectors”, a fine if they don’t respect the code!).

Yours sincerely, Dominic Rey.

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May I offer my congratulations for the fine and varied contents in the June 1991 issue but more especially for your most excellent Editorial. My hope is that it will be read by the people it is intended to impress.

Perhaps a repeat in the Entomologist might reach a wider number of readers?

Well done!

With kindest regards, sincerely yours, Ron Dyson (91).

## **WILDLIFE AND COUNTRYSIDE ACT 1981**

*by W.J. Tennent (7756)*

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Having recently returned from a long spell abroad, I find in the pages of four of the eight entomological publications I subscribe to, the same NCC letter giving chapter and verse on the entomological implications of the 1981 Wildlife and Countryside Act.

With no wish to trade in anything — and not having collected butterflies in the UK for very many years — I have no axe to grind either way. I confess I have not followed the subject with any great interest but, having read the most recent journals, one cannot help but think firstly, that the Law is surely an Ass and secondly, with the notable exception of two editorials from our Editor, there seems to be a resounding silence on the subject from AES members; numbers of whom presumably think so too. Are we “collectors” to accept this persecution meekly, until the day arrives when the collecting of any insect for any purpose is made unlawful, apparently to pander to the whims of legislators and “conservationists” who, whilst undoubtedly well intentioned, seem so ill informed? (I was amused to see whilst browsing in the Royal Entomological Society library the other day the amazing statement that “. . . The capture and occasional killing of specimens for essential research purposes is not collecting, as no sense of possession of ownership is involved.”!) (*Butterfly Conservation News* 49: 10.)

There seems little doubt but that there are a number of butterfly species that require protection from a number of dangers on their horizon. Equally, it is obvious that creatures like *Papilio hospiton*, on the very

verge of extinction in Corsica and Sardinia, clearly deserve the CITES protection they enjoy. I know that because somebody told me, or I read it somewhere, so it must be true. No doubt since *hospiton* was described by Guerné in 1839 it has been high on collectors' lists of desirable species and no wonder it is on the verge of extinction. Indeed, I remember an elderly German entomological professor proudly telling me how he and two colleagues had gone to Corsica for two weeks in the 1950s and paid all their costs by selling the *hospiton* they had brought back.



*Papilio hospiton* — the commonest swallowtail. Sardinia, June 1991.

Oddly enough I have just spent a month touring Corsica and Sardinia and found the butterfly to be quite common; certainly more so than its congener, *Papilio machaon* and than *Iphiclides podalirius*. Its biotope is quite wild and the butterfly seems to have survived very successfully despite the ravages of collecting and trading over the years. I hasten to add that the only *hospiton* I brought back were recorded on cellulose.

Brian Gardiner makes a number of valid points and common sense observations (*Bulletin* 50: 97-99, 145-146). To ban the trading of all "foreign" subspecies of one of our protected species surely goes beyond the spirit of what was intended by legislators. To ban the trading of continental insects which are a pest in their natural habitat is ludicrous. If it is proposed in the future to make, for example, possession of certain butterflies which came from very old collections illegal, then the law, proposed by the kind of "experts" who don't know the difference between crickets and grasshoppers (*Bulletin* 50: 18) and think Camberwell beauties were once common in the UK (*Bulletin* 50: 124) is not only an Ass, it is stupid.

**NATURE: AS NOT INTENDED**

by Bryon Pateman (8922)

114 Whitehall Road, North Chingford, London E4 6DW.

I first decided to make a moth trap in 1989 and I duly disciplined myself to systematically log and photograph one of each species as an ongoing record of catches in my garden in North Chingford, London.

Having heard me utter “Just one for display is OK”, my wife and neighbours duly accused me of being no better than those beastly chaps who hunt foxes, badgers, otters etc. . . . Thus I decided not to kill one moth — just catalogue them. Ashamedly, having got used to my somewhat enforced discipline, I decided in July 1991 to uprate my 9 watt actinic light source to a 125 watt mercury vapour lamp. The good news . . . my catches increased some sixfold overnight! The bad news . . . a squadron of bats (chiroptera) duly arrived out of the night sky and zoomed in to decimate the encircling moths. They soon realised that instead of chasing to all points of the compass for their evening meal, yours truly would supply their supper on a regular basis, albeit indirectly.

This plagued my conscience, and I tried to evaluate my earlier discipline, but my wife assured me “that this was nature, and anyway just think of those poor starving baby bats . . . after all they’re only moths”. I succumbed yet again and maintained my discipline, just photographing only. One month later, having reconciled myself to supplying “fodder” for the local bat population, I received a new attack upon my discipline. A dog fox (*vulpes vulpes*). Any of my friends who escaped the aerial attentions from the bats and managed to settle on the ground near the trap were promptly eaten by the fox. Regular as clockwork as the lamp switches on, he arrives (bless him!) and parks himself next to the trap and waits for his evening desserts.

I only wanted to take one for display, but my new-found friends, the bats and the foxes, are pushing my “discipline” to the limit. I now feel guilty that whilst my personal “discipline” saves the life of one moth of each species, my hobby and pastime is responsible for the death of hundreds — perhaps thousands — which were happily enjoying their summer vacation in North Chingford. To add to their troubles, I created a nectar rich garden environment. Little did I realise that I would be personally responsible for their early demise. Please help! I only wanted *ONE* for display!

*Question: Should I shoot the fox, the bats, or the wife?*

Your answers would be welcome!

## OXFORD UNIVERSITY COMORO ISLANDS BUTTERFLY SURVEY 1992

by Owen Lewis (8132)

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The Comoros are a group of four islands in the Mozambique Channel, between the northern tip of Madagascar and the east African mainland. This summer I will be leading a team of three undergraduate biologists on a ten week expedition to carry out a survey of the butterflies of Grande Comore, the largest of the islands.

The butterfly fauna of the Comoros comprises around sixty species and is an interesting mixture of species of both African and Malagasy origin. There is a remarkable degree of endemism, with perhaps ten butterfly species and a similar number of sub-species found nowhere else in the world. Unfortunately, many of these butterflies are under threat as the spread of cultivation and forestry pushes the rainforests that once covered the islands higher and higher up the mountain slopes. Two spectacular swallowtail butterflies, found only on Grande Comore and listed in the *IUCN Red Data Book*, are cause for particular concern. *Papilio aristophontes*, a blue-banded swallowtail in the *nireus* group, appears to be restricted to primary or mature secondary forests below 1500m, a rapidly diminishing habitat. The huge, cream-coloured *Graphium levassori* is even rarer. I have been unable to trace any records more recent than 1980. Nothing is known of its larval foodplant or ecology.

Our survey has two main aims: to investigate the distribution, status and ecology of these two *Red Data Book* swallowtails and to investigate the richest areas on the island for butterflies in general. These "local centres of diversity" will be identified using transect walks, allowing a variety of sites to be compared. This will indicate possible areas for conservation by the Comoran authorities, who have shown an interest in designating a forest reserve on Grande Comore and have given their full approval to the expedition. We also hope to contribute a section on butterflies to a forthcoming book about the wildlife of the Comoros, with all proceeds used to promote conservation in the islands.

The expedition has a budget of £7,196, towards which the team members are each contributing £500. The remainder is being sought through sponsorship. Any contributions towards the costs of the expedition (or donations of equipment) would be greatly appreciated. Similarly, if any AES members have visited the Comoros, their advice and information would be most welcome.

## WHY SOME BUTTERFLIES VARY TREMENDOUSLY BUT OTHERS DO NOT

by Len Winokur (8070)

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On reading Chris Raper's (1990) quest for clarification on points of mimicry, I felt at once compelled to compile this brief overview, in the hope that it might stimulate further response and discussion.

Genes and environment interact during development through which adult form is attained. The two comprise what is technically known as the "generative field" (Goodwin, 1984) but more simply development system. If there is no genetic variation (as in a "clone") nor environmental source of variation ("environmental variation") then all individuals will be visibly identical. Given that there is, however, genetic and environmental variation, the amount of variation expressed i.e. *manifest*, depends on the stability of development to such potential sources of variation: indeed a species may show little or no outward variation under widely fluctuating environmental conditions or when its genetic variation is considerable. Such developmental stability or "canalisation" (Waddington, 1961) is itself under genetic (among other) control and so can be increased (or decreased) by selection (Waddington, 1959).

In Lepidoptera, identical aberrant forms can be induced by genetic mutation and abnormal (usually extreme) environmental conditions. It is not that one kind merely resembles the other. Rather, *both* are identical manifestations of a *common* developmental process; it is merely the *conditions* (abnormal gene or environment) which bring the process to manifestation that differ. Such "in-common-ness" represents a phenomenon known as "similitude" (Ho, 1989). Similitude is also commonplace between taxa. In Europe for example, the "White-banded graylings" (*Brintesia*, *Chazara* and related genera) show similar patterns to the "White admirals" and "Purple emperors" (genera *Limenitis* and *Apatura* respectively, see plates in Higgins & Hargreaves, 1983). Moreover, several *Hipparchia* and *Apatura* also sport alternative orange-banded forms. It is precisely their comprising similar developmental properties which accounts for the patterns (and for the suite of heritable forms — white or orange alternatives) being common to both, a phenomenon known more generally as *pseudomimicry* (Ho *et al*, 1986). More spectacular examples involve the characteristic blue of male Palaearctic Lycaenini, whose females are typically brown, and the South American "Morphos" where again the males are blue but the females brown. Since these not only belong to distinct families but also inhabit quite separate continents, clearly there has been no opportunity here for "mimicry", in the strict sense, to have arisen.

The above do, however, provide clues to understanding mimicry. It is precisely because of such similitude that two (or more) species can *function* as "model" and "mimic". These properties are not intrinsic to either species but come about through the position of each within a species. 1 — species. 2 — predator *relationship*. Moreover it is similitude which allows for such relationship to occur, for the relationship also requires that the predator is "duped" i.e. does not *perceive* the butterfly species as different. In other words, the concept of "model" and "mimic" and "dupe" belong to this *relationship*, and not the species *per se*. That similitude is prior, not subsequent, to mimicry is further supported by the contention that a palatable mimic would fare even better were it to evolve a bad taste (Saunders, 1984). However, this would appear to involve more complex changes and so be a more difficult developmental achievement; common patterning processes, on the other hand, are already in the waiting (Saunders, *loc. cit.*).

As regards Mr Raper's question as to variability, there are three aspects to variation. The first is the entire range of heritable forms; the second is the range of such forms within any area; and the third is the degree to which individuals of given form vary. Mr Raper is quite correct in stating that if Batesian mimics were too frequent a predator might learn that they are tasty; more specifically there would be less opportunity to associate their pattern with the noxious taste of the model. This limits mimic population size to about 10% of that of the model, so its maximum possible number is limited. This phenomenon is known as "frequency-dependent selection", and here lies the answer to the first interpretation of the question. By mimicking several distinct models, however, a species can maintain numbers equal to, say, 10% of the sum of all its models.

The answer to the second interpretation of the question as to why Heliconiids in South America are more variable than species in Europe, with more distinct forms, is rather more involved. It is that these differences in variability concern *qualitatively* large, visible changes, easy to achieve from the viewpoint of the developmental systems — possibly as simple as those involved in the morphologically small differences among European forms (e.g. white and yellow forms of *Colias* butterflies). Indeed, it is the *quantity* of *kinds* of change, rather than their individual natures, which marks the complexity of evolutionary progression (Saunders & Ho, 1976). In short, Heliconiids may not, physiologically, vary more than European species, whose differences may be equally simple. Visible differences in variability are purely *functional* ones in the context of predatory constraint. Indeed, mimicry may be commonplace also among European butterflies, albeit in respect of other features of prey unsuitability, say difficulty of capture.



Lepidoptera wing patterns are made up of well-defined units of pattern or "pattern elements", which comprise the so called "Nymphalid Groundplan" (Schwanwitsch, 1924). The groundplan is sufficiently universal in Lepidoptera that more than 80% of all patterns can be understood in terms of its elements (Nijhout, 1981). These elements have since been shown to correspond to developmental units (Nijhout, *loc. cit.*). The main tenet of Mullerian mimicry is that approximate but adaptive mimicry can become established through one or a few genes with big morphological effects, with the resemblance subsequently improved by the accumulation of appropriate small-effect or "modifier" genes (Sheppard *et al.*, 1985). Large-effect genes affect particular pattern elements and, indeed, changes to single elements typify *Heliconius* pattern evolution (Nijhout *et al.*, 1990). As regards the range of mimetic forms, we have already seen that a mimetic relationship requires that the "dupe" does not perceive — or learn to perceive — the "mimic" and "model" as different. Thus given the potential range of physiologically possible forms, predatory constraint will limit the range of such forms that are *manifest* in the mimic to those which correspond to the range of forms manifest in the model. There are two ways in which this might come about. The first is that predators simply remove the gene (more correctly heritable propensity) for non-mimetic patterns from the population by eliminating all such individuals: this is selection in the usual sense. However, the "gene" may remain in the population, only selection build up a developmental system in which its outward *manifestation* is blocked — in other words, canalise against its *expression*. Ford, (1940) showed that the usual white form of the Magpie moth, *Abraxas grossulariata*, could be rendered recessive to the rarer yellow form, *lutea*, by selective breeding. It was not that the "white" gene was eliminated; rather a gene-complex had been built up that prevented its expression in the presence of the *lutea* gene.

This now brings us to the third, and final, interpretation of the question of variability — the degree to which individuals vary. Since certain predators, in particular birds, can learn to discriminate even fine detail, it may not be good for individuals of a mimetic form to be too constant unless they be identical to the model — or the predator might learn to discriminate such a constant, albeit small, difference. Thus, by maintaining a degree of individual variability, the "mimic" would continue to confuse the "dupe"; which would be especially useful in Mullerian mimicry where both species are unsuitable prey (and hence neither put at a disadvantage by the other's role as "mimic"). Even in Britain, species differ in the frequency and extremity of the genetic and environmental aberrants they sport (see Ford, 1957), and as stated earlier, mimicry might occur there too: after all, there is no *a priori* reason why it ought not.

Finally, we return to the concept of similitude, for it is important to point out that the concept of "common ancestor" is not necessary to account for mimetic resemblance of either the Batesian or Mullerian kind, although this is not to say that in certain cases there could not have been common ancestry. The simple dwellings built by South American and New Guinea tribesmen, for example, are remarkably similar in form and construction materials, yet no one would ever suggest that both were based on some common, earlier, design; nor that one was copied from the other. And so it is with mimetic resemblance. Mimicry poses fundamental questions not only in biology, but also philosophy and psychology, and I hope the foregoing account has gone some way to answering these questions and stimulating further interest in this exciting field.

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## THE BRIMSTONE (*Gonepteryx rhamni*): OVA TO PUPA, SEARCHING, FINDING AND REARING

by Paul W. Batty (8926)

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The Brimstone is, for me, one of the most interesting of our native butterflies. Probably the longest living of the butterflies, with a life span (including hibernation) of up to ten months, it is quite unique in many ways. Of our native butterflies that hibernate as adults, it stands alone from the Nymphalids. The males are easily seen and the females are easily overlooked. Unlike the Peacocks and Tortoiseshells, which in the spring, usually look like they have been run through a mincer, post-hibernation Brimstones often look as fresh as the day they emerged.

The foodplants chosen by egg laying females in May, are the shrubs, purging buckthorn (*Rhamnus catharticus*) and alder buckthorn (*Frangula alnus*). Purging buckthorn has a preference for chalky or lime soils and alder buckthorn likes heavier and wetter soils. For those who are not familiar with these shrubs, a good identification book should be carried in the field or much time will be wasted searching dogwood, spindle or privet.

The egg is very much like that of the Large white, skittle shaped, about 2.5mm high and a greenish creamy white colour. The eggs are laid usually on the underside of a fresh terminal leaf, although I have often found them on the edge or upperside of a leaf. Many books advise seaching well up on the bush, but my own experience leads me to the medium and lower hanging leaves, often those hanging down into the grass. This sunny side of the bush is usually the best, but not always, and the smaller bushes often reveal the most eggs. Young, thin and scraggy buckthorns in a recently planted hedgerow, were found to have up to 30 eggs on each last year. Sadly, this was only discovered because the buckthorn were defoliated and by this time most of the larvae had starved to death, although the empty egg cases could still be seen, on odd remaining terminal leaves.

An easy way of collecting eggs is to grow a buckthorn in a bucket and place this, in May, in a hedgerow or woodland edge where the male Brimstones have been seen flying up and down. You may never have seen a female Brimstone, but she will be there and she will find your bush and cover it with eggs. Whether one Brimstone lays all the eggs or several, I am not sure, but I would suspect several, as a female confined on a netted bush is usually reluctant to lay more than a couple of eggs.

Once you are sure of the foodplant, no mistake can be made if an egg is found, as nothing else lays a similar egg, singly, on the buckthorn. For

rearing, the shoot can be cut from the bush and placed in a small airtight container until the egg hatches, usually around ten days if the egg is freshly laid. New leaves should be prepared in clean containers every two days and the caterpillar should be left on its present leaf and this dropped onto the new ones. Up to 12 larvae can be reared together in a container the size of a 16 oz. margarine tub, although as they near pupation, it is better to thin them out to five or six per container. They can also be sleeved on a growing bush in the garden but I find that this results in more losses. Plastic containers should have at least the lid of transparent plastic to admit light, although direct sunlight should be avoided. Low light levels and a temperature of 65 to 75°F seem acceptable. I have had no troubles by changing the diet from alder to purging buckthorn at various instars, although it is usually a good rule to stick to the same foodplant when rearing any species.

Caterpillars are as easy to find as eggs (once you have found the correct foodplant), and medium to low branches should be searched. The caterpillar will be found on its own, and has remarkable camouflage being the same green as the leaves. It will usually be found lying along the midrib of a leaf, on the upperside and a few leaves with chunks eaten out of them betrays its presence. If you find a bush of about a cubic yard in size, do not be surprised to find twenty or so larvae. Of larvae collected at various instars from the wild, only around 1% have been found to be parasitised and even these manage to pupate, the parasite emerging from the chrysalis, a few days after the pupation. The chrysalis is of the same form as the Large white, with the tail attached by silk and a silken thread as a support girdle., These can be carefully cut with a scalpel and the chrysalis placed on corrugated cardboard in the emerging cage. The pupal stage lasts around 14 days and the sex of the adult can clearly be seen by the colour of the chrysalis prior to emerging.

A friend of mine regularly releases 20 or 30 freshly emerged adults at his favourite woodland edge. A couple of dabs of various colours of nail varnish ruins the wings for a potential set specimen and show up as "one of his" when caught the following spring.

## **LATE PAINTED LADY, IN STAFFORDSHIRE**

*by Jan Koryszko (6089)*

On 30th October 1991, a friend who works in a pot bank factory in Longton, Stoke-on-Trent, saw a Painted lady butterfly (*Cynthia cardui*) sitting on the roof above a kiln oven, no doubt enjoying the warmth, with its wings open.

His identification was not in doubt, his late father was an entomologist many years ago. This is the latest record I have heard of in the county so far.

## AN UNEXPECTEDLY SUCCESSFUL BREEDING EXPERIMENT WITH, AND LONGEVITY OF, THE PEARL-BORDERED FRITILLARY

by Ken Ulrich (7502)

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During 1990, I obtained captive stock of Pearl-bordered fritillary (*Boloria euphrosyne*) from which approximately 500 larvae were bred.

These were required for scientific research purposes by Dr David Corke, but due to his taking up a position in France they were redesignated, I believe, to be used for a re-introduction project somewhere in the Home Counties.

A few undetected larvae remained on a pot of violets used in the breeding cage. In fact, four larvae overwintered successfully. Two pupae were removed from the cage netting during the second week of May 1991 and the final two pupated on 17th May, one of which was spoilt upon removal to the emergence cage.

On Sunday 26th May two male adults emerged and of these, one was taken for a cabinet specimen.

The remaining male was kept in a dark pill box in a cool place and every evening it was taken into a small warm room where firstly it was fed with nectar solution by uncoiling the proboscis. This took considerable patience and perseverance! When satisfied it was encouraged to fly for several minutes in order to keep up its strength.

On Friday 7th June, twelve days later, the last adult emerged: a female. Both male and female were immediately placed in a breeding cage. The next day the weather was poor and it was not until Sunday 9th June that they were both able to fly in sunshine. The male was flying quite strongly in spite of its lengthy confinement.

At this stage, because of the age of the male, I had no hope whatever of a pairing. The male was found dead on Thursday 13th June.

On Friday 14th June we set sail for our annual fortnight's holiday in France, having left the solitary female with plenty of fresh flowers, pads soaked in nectar solution and a large pot of violets.

It was not until Saturday 29th June (15 days later) that I was again able to examine the breeding cage and to my utter amazement the female was still alive. This must have been due to the extended period of cool wet weather in Essex in June. It was in fact recorded as the wettest June for 50 years.

There were a number of eggs on the cage netting which were duly removed with care on Sunday 30th June, along with — wonder upon wonder! - two newly hatched larvae. The pairing experiment with a male

at least 12 days old had been successful. The female died on 2nd July having lived for 25 days.

Although the methods employed above would not be possible with certain other butterfly species, because of their very nature, the success of this experiment should be of encouragement to breeders or "would-be breeders" if they should, for one reason or another, be left with *minimal stock*. Breeding in these situations should of course only be conducted as emergencies, and responsibly, since "in-breeding" could have detrimental genetic effects.

## BOOK REVIEW

*The Stick Insects of New Zealand* BY J. T. Salmon 124pp, 9¾" x 7½" Reed Books, Auckland 1991. ISBN 0 7900 0211 6. Hardback price — New Zealand \$39.95. (Address of the publisher - Octopus Publishing Group (NZ) Ltd (part of the Reed International Books), 39 Rawene Road, Private Bag, Birkenhead, Auckland 10, New Zealand.)

Attractively presented with a pink dust jacket incorporating a photograph on the front and watercolour of a set specimen on the back, this book is a must for anyone with even the slightest interest in stick-insects. These individuals may just want to book a flight to New Zealand! In addition, the book is written in an easily understood format and will appeal to those interested in Natural History generally.

The author, Professor John Salmon, is well known as a writer on scientific subjects. He has had books published on New Zealand trees and plants, and his scientific papers on the Orthoptera, including stick-insects, are highly regarded. Salmon has spent many years studying the stick-insects of New Zealand and his attention to detail means the coverage is probably the most outstanding work this century on stick-insects, apart from the well known monograph by Brunner V. Wattenwyl & Redtenbacher (1906-1908).

The book is split into ten main sections, as follows:

### Chapter

1. *Historical* — Concise notes on publications of interest on New Zealand stick-insects.
2. *Morphology* — Excellent section, well illustrated.
3. *Habits* — Various observations, including notes on foodplant preferences. The introduction is also a valuable source of information, including observations on the decline in stick-insect populations due to the use of chemicals.
4. *Life Histories* — Includes comments on parthenogenesis and sexual reproduction, particularly relevant in the New Zealand fauna. The black and white photographic sequence on a stick-insect moult on pages 28-30 is outstanding.

5. *The Eggs of Stick Insects and their Importance in Taxonomy* — General description of stick-insect eggs and their significance, in some cases leading to changes in taxonomic opinion in this book. Study of the form of eggs is too often neglected in studies on stick-insects, and yet they can be crucial in distinguishing closely related species.

6. *Key to New Zealand Genera of Stick Insects*

7. *Key to New Zealand species of Stick Insects using their eggs*

8. *Key to the Adult Female Stick-Insects of New Zealand* (including relegating all current species within the genus *Acanthoxyla* into subspecies of *Acanthoxyla prasina*).

9. *Key to the Male Stick-Insects of New Zealand*

All keys are concise and straightforward to follow. Supplemented with the photographs and paintings in the next section, even closely related species should be simple for the beginner to distinguish.

The section which follows — *The New Zealand Genera and Species* is the main section of the book, pages 47-117, and here one can find the author's outstanding life-size watercolour paintings of each of the 21 species and subspecies. Adults of both sexes are reproduced (where males are known) and sometimes nymphs. Colour photographs of eggs (all x 16) are also included, making this book invaluable for anyone studying or breeding New Zealand species. I particularly like the paintings showing different colour forms of species, sadly neglected in most work on stick-insects. Black and white photographs to highlight distinguishing features of adults are included, along with some line drawings. The text gives concise descriptions of adults and eggs and details of distribution range. Most species are endemic. The genera are dealt with in turn, including some taxonomic changes and descriptions of three new species. The book is completed with a selected Bibliography and Index to scientific and New Zealand common names of species. The Horrid stick insect, *Argosarchus horridus*, is a very apt name for this large, spiny species!

Throughout the book, the printing is of very high quality, and it is no surprise to see it has been printed in Singapore.

I am reluctant to criticise this book at all, but merely point out, from a practical point of view, that the inclusion of maps would have been useful, particularly for the subspecies of *Acanthoxyla prasina*. Likewise, photographs or drawings of typical habitats and foodplants would have enhanced the book even more.

The introduction, on page 7 implies that Westwood's 1859 volume is the only monographic work on stick-insects, but any serious student on stick-insects will need to consult Brunner V. Wattenwyl and Redtenbacher (1906-1908), which is, however, mentioned in the Bibliography.

The coverage of the genus *Acanthoxyla* is of particular interest to entomologists in Britain, as it includes what we regard as two species found mainly in south-west England. The genus (seven species) breed entirely parthenogenetically, males being unknown. Salmon has relegated six species to subspecies level, even though they breed relatively true and the differences between each subspecies are usually quite distinctive. The eggs are also usually distinct, although broadly similar to one another, which has influenced Salmon's thinking. The two British species *Acanthoxyla geisovii* and *Acanthoxyla inermis* are very distinct from each other and *Acanthoxyla prasina*. Salmon does not refer to the study by Mantovani and Scali (1987) dealing with eggs of these three species. However, he does point out that extensive genetic studies are desirable to establish the relationship between the *Acanthoxyla* and the closely related *Clitarchus* and new genus *Pseudoclitarchus*. Strictly speaking, allocation of separate species status to similar parthenogenetic populations is controversial, but extensive genetic studies on the European and Mediterranean genus *Bacillus*, mainly by Italian workers has revealed complex species structure and origins (see Brock 1991). The whole taxonomic structure within the Phasmatodea is very confused and Salmon's early efforts to identify stick-insects met with an examination of Hutton's collection, where males of various species had been put aside and left unidentified!

To summarise, an invaluable book for anyone with an interest in stick-insects, which will surely inspire further studies on the New Zealand fauna. A must for many entomologists' bookshelves at a very reasonable price (Sterling equivalent £12.50 at current exchange rates, excluding postage and bank draft charges). Also suitable for those who appreciate good Natural History books.

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Paul D Brock

#### CATT'S COUNTRYSIDE NATURE BREAKS

For those who might like to holiday in Devon, Ann and Martin Catt run a series of walking and wildlife holidays (accommodation available) from their home on Devon's Heritage Coast. Details and brochure is available from them at "Migrants Rest", East Prawle, Kingsbridge, South Devon TQ7 2DB. Telephone 054-851443.



**BUTTERFLYING IN SOUTHERN YUGOSLAVIA DURING MAY 1990**

by P.J.C. Russell (8977)

(Continued from page 48)

*Finding four new species for the trip on my first afternoon back in Yugoslavia, I decided to head back southwards and in particular to revisit the Crni Drim Valley to see if I could find some female A. damone.* After spending the night on the campsite at Predejane, I set off in damp misty weather towards Skopje and following an uneventful drive arrived at the Struga camp on the lakeside where I had been almost two weeks previously. The following two days were overcast with frequent showers of drizzle and on the second day I consoled myself by visiting the campsite restaurant for lunch which consisted of a bowl of homemade soup followed by a succulent brown trout from the lake — served with chips of course! But that did not detract from the pleasant change it made from my usual diet of tinned or packet food from home; however, this had proved to be absolutely essential in Bulgaria and the more rural areas of Macedonia.

It was 15th May when I gave up waiting for the weather to clear and set off back towards Skopje, having decided to try Montenegro and the Adriatic coast for better conditions. After I had passed over the high passes of the Dren Planina the skies began to clear and the sun was shining when I reached the slopes near Grupcin where I had stopped 15 days earlier. I pulled off the road, went off up the slopes and immediately encountered *L. duponcheli* and *B. gruneri*, the latter somewhat worn but both plentiful. *M. phoebe* was flying here now in some numbers. They were very lightly marked in the discal area with almost no colour contrast, one female in particular looking almost like *M. aetherie* (*Aetherie fritillary*) from southern Spain. One further species was added to my log, a single female *M. didyma* (*Spotted fritillary*), darkly suffused and obviously of the subspecies *meridionalis*. I continued northwestwards to skirt Albania, whose borders were still closed, via Pristina, through which I drove in the heaviest rain of the trip and reaching Ivangrad late in the afternoon, I stopped for the night.

The next section of the journey produced the most hair-raising driving conditions as the road crossed and recrossed deep gorges across viaducts and in tunnels through the mountainsides; these latter ranging from 50 to 300 meters in length, with no lights, cats-eyes or road markings of any kind. As one drove into these tunnels, often having bends in them, one's eyes could not accommodate quickly enough to penetrate the blackness, especially with the odd juggernaut approaching, lights blazing, in the middle of the road (their only possible position, as the sloping arched

sides of the tunnels could not accommodate their height!). I was often forced to creep as close as I dared to the edge until I felt the tyres brushing against the kerb (the only concession to motorists) and stop, hoping the lorry would pass by without crushing me. I finally came out of the mountains dropping down into Titograd with the road lined by the tall thin evergreens of the postcard scenes of the eastern Mediterranean region.

Crossing the delta of the River Moraca with its extensive reedbeds, I was in yet another world. It was hot with the sun beating down, and as I climbed up the steep pass over the coastal mountain range it required the full blast of outside air from the ports on the dashboard to keep me cool. I stopped just over the top of Poljice pass at around 700m, stripped off my sweater, rolled up my shirtsleeves and encountered my first and only *Vanessa atalanta* (Red admiral) sunning itself by the roadside. Another new record was *Eurodryas aurinia* (Marsh fritillary) which was common here; the specimens were large and the forewings rounded with little colour contrast (ssp. *provincialis* f. *rotunda*?). A few rather worn *L. sinapis* and *E. tages* and a single fresh second brood specimen of *P. ergane* provided the only other sightings here. However, down on the coast road, I stopped near Krstac and immediately added a further three species: *Maniola jurtina* (Meadow brown) (males), *Ochlodes venata* (Large skipper) and *Thymelicus sylvestris* (Small skipper) (males) all in a fresh condition. On returning to my van I picked up from the road a fluttering male *I. iolas* with a broken wing but otherwise quite fresh. In late afternoon I reached the campsite on the slopes overlooking the picturesque island of Sveti Stefan and chose, for the first time, a place in the shade under an old olive tree. As I sorted out and tidied up the van, I looked at the pot of stonecrop containing the *S. orion* ova and, as I thought I could see some empty egg shells, I made a closer inspection with a hand lens. They had indeed started to hatch and I removed some of the stems with small larvae or ova still attached and placed them in two small plastic boxes to reduce the chances of a total mishap. It had taken them about 14 or 15 days to hatch but in temperatures rather lower than usual I suspect.

The next morning was spent driving north along the coast road with frequent stops but no new sightings. I then turned inland after skirting Dubrovnik and climbed the coastal mountain ridge, stopping about mid-day at the head of Visocnik pass (400m). This dry scrubby area yielded some seventeen species of which *L. idas* (Idas blue) (males) and a pair of *A. escheri* (Eschers blue) were newly encountered. *C. minimus*, *C. osiris*, *L. bellargus* and *A. thersites* (Chapman's blue) were common as was *S. orion*, the male specimens of which were very small and bright sky-blue with little dark suffusion, and I at first mistook them for heavily marked *P. baton* which was also flying there.

Plitvice National Park. The crystal clear water tumbles down across rocks from one lake to the next.



*M. Cinxia* and *P. sidae* were found in an adjacent partly cultivated meadow with *P. ergane* and *A. rapae* on some planted *brassica* sp. with a few *P. icarus* and *C. pamphilus* in the grasses. I continued north towards Stolac (Bosnia), from where *C. leander* ssp. *orientales* (a common misnomer since they must represent specimens from the most westerly part of the distribution of this species) has been reported. I was unsuccessful in my search, finding only a few *A. crataegi*, *M. cinxia*, *L. reducta* (Southern white admiral) and a single male *Pyrgus* sp. (later identified with some uncertainty as *P. alveus* (Large grizzled skipper)).

After a night in the woods I left the area early with the intention of searching the coastal region around Sibenik for *E. phegea* (Dalmatian ringlet). The two Germans whom I had met on Galacica Planina had told me that they had flushed two males in bad weather on 28th April. I had no idea of the exact locality or even of the terrain frequented by this species so I searched some dry stoney areas to the south and east of the town. One, near Jadrtovac (30 - 50m) yielded no *E. phegea* but a single male *Melanargia larissa* (Balkan marbled white) and some small male *L. idas* having very large and bright silver green "studs" around the margin

of their hindwings. I made camp nearby at Pirovac and the following day searched an area of rocky ground on the coast north of Sibenik near Tjesno (30 - 100m), which proved to be quite productive (but not for *E. phegea*, which eluded me completely) and yielded a total of 23 species. Freshly emerged second brood *P. ergane* were flying there with a few *P. mannii* and *P. rapae*; I was beginning to be able to separate these three species on the wing. The most abundant species were *L. bellargus*, *P. icarus* and *P. daplidice*. *L. idas* was plentiful and again small and brightly studded. *P. sidae*, *L. reducta* and *M. cinxia* were frequent and a very worn female *P. egea* (Southern Comma) and some fresh male *G. cleopatra* (Cleopatra) were added to the list of new sightings.

On the following day (20th) I set off via Obrovak and Gracac, stopping at some partly wooded and gently sloping grassy hills at about 550m near Bruvno. The final instar larvae of *E. aurinia* were abundant with a few adults on the wing. They showed remarkable variation in colour, size and shape but were certainly of the lighter ssp. *provincialis* and most were of the f. *rotunda*. I collected seven larvae, five of which proved later to have been parasitised but two produced fine female imagines soon after my return to England. The males of *E. medusa* and *M. cinxia* were both common but no females had yet emerged and I recorded my first *B. euphrosyne*, a single male. In an area of exposed layers of rock with plentiful *Sedum* sp. both *P. baton* and *S. orion* were flying and I took a pair of *L. maera*. In an area of rougher, stoney ground *C. minimus* was exceptionally abundant, and some patches of thyme had attracted numerous *E. tages*, *A. agestis* and *A. thersites* together with a few *P. malvae*, *P. dorylas* and a single *S. orbifer*. Twenty-one species were recorded from this locality in only fair weather. During a dull spell I collected some small black hairy larvae from a stunted hawthorn bush (*Crataegus* sp.), which were identified later as *Saturnia pavonia* (Emperor moth). In less than ideal weather I continued my journey to arrive at the luxurious (for Yugoslavia, anyway) campsite just outside the Plitvice Lakes National Nature Reserve late in the afternoon.

The following morning was bright and sunny and by 08.00 hours I had become a tourist strolling along the wooden catwalks across the tumbling waterfalls of this unique geological phenomenon. It consists of a series of sixteen lakes, whose crystal clear aquamarine blue water tumbles down from one to another over a series of terraces and covers a distance of some 8km finally pouring over a 75m high rock wall into a gorge where it becomes the Korana river.

The lake beds and their debris are pure silvery white having become coated with limestone; it is a sight not to be missed on any trip to

Yugoslavia. However, by 11.00 hours the lines of camera clicking tourists were snaking back and forth along the narrow walkways and I had the urge to return to the tranquility of the woods to the north, so I chose a back road out of the picturesque village of Poljanak. It wound its way, mainly as a single track, up through dense forest and mountain villages, whose quietness was broken only by the sound of cow bells in the adjacent sloping meadows. I stopped frequently to search the open glades and at one, just outside Saborsko (600m) I found a colony of *L. sinapis* so numerous that it was possible to net three or four in one sweep. *E. medusa* was also very common, but only males were flying — as I was travelling north I was probably keeping pace with their times of emergence. *P. napi* and *C. minimus* were common with a few fresh male *G. alexis* and *B. euphrosyne*. Individual numbers were high but only ten species were recorded here. At a lower level (475m) the males of *H. tityrus* and *H. lucina* were flying but no new sightings were added to my species list.

My final night in Yugoslavia was spent in dull misty conditions on the edge of a wood. The following morning after a dull start the sun made some brief appearances. During one of these I stopped in a forest clearing near Vrbovsko (450m) and added three new species to the list: single males of *Mellicta athalia* (Heath fritillary), *Everes argiades* (Short-tailed blue) and *C. palaemon* (Chequered skipper). Continuing north I skirted the city of Ljubljana and made a brief stop at Bled to view the island church set in the middle of the lake. Crossing into Austria at Koren, I joined the autobahn at Villach in heavy rain and after an overnight stop near Pirmasens I arrived at Calais late the following evening. Having visited a local supermarket I caught a mid-morning ferry to Dover in company with a group of Territorials who had been on a two-week cycling trip round the battlefields of north-east France for charity. These were the first English people with whom I had spoken for a month and I was eager to catch up on the news. I arrived home on 24th May having covered almost 5,000 miles to hear that the weather had been marvellous whilst I had been away with only one rainy day. I consoled myself with the fact that, despite some periods of appalling weather, not only had I recorded seventy-seven species of butterflies, many of which I had never encountered before, but also brought home some unforgettable memories: the morning sun illuminating the snow capped Albanian mountains, the island of Sveti Stephan in the sunset, the beauty of the Plitvice Lakes; and, most vivid of all, the Bulgarian families trapped in no-man's land under the most dreadful conditions trying so desperately to gain something that we British have taken for granted for nearly half a century . . . freedom.

## BOOK REVIEW

*Collect butterflies and other insects on stamps* by Albert Coles and Timothy Phipps. A5 paperback. ISBN 0-85259-371-1. Pp 178, coloured cover, illustrated. Stanley Gibbons 1991. Price £12.95.

About 3500 stamps have now been issued depicting over 1600 insects and this book lists most of them, together with the price at which Messrs Stanley Gibbons will supply them. Prices are by complete sets, or individually when the "set" contains stamps other than insects. Arachnids are, however, included. Many of these stamps are still remarkably cheap, one Guyana set of 24 stamps being only £1.25. The most expensive I spotted was a 1950 Swiss bee stamp at £12.00 used, but then anything to do with bees always seems to fetch a premium price.

This book contains one of the clearest layouts I remember ever having come across, being both spacious and extremely well printed. The order is alphabetic under country of issue with the stamp listing them being by year of issue, starting with the earliest. Each country is clearly separated by a black rule. Almost every issue is illustrated in black and white with, usually, the lowest denomination of the set. There is extensive indexing which is easier than many to follow by the judicious and intelligent use of bold, italic and roman type and suitable indenting.

Since many names actually used on the stamps are not accurate, synonyms and cross-referencing are indicated. The first index is of species by genus and refers to the code number under which the third index lists species. Index two is of the orders and families of insects depicted on stamps and it is interesting to note that less than half the known orders so far occur, with beetles and lepidoptera leading the way in numbers. Index three lists families under each order and the genus follows in alphabetic order. Each species in the genus is then followed by the countries on whose stamps it is shown and the SG (Stanley Gibbons) catalogue number of the stamp. It is therefore very easy to find out the names of the 17 countries which have issued a Red admiral on a stamp. Some of them more than once!

Since this is a catalogue issued by a reputable firm with rigid standards, it is purist and does not recognise "wallpaper" stamp issues nor those of hypothetical nations (eg Maluka Selatan) although a few are listed when some may have been postally used. While this is understandable, I think it is a pity that symbolic, fictional or anthropomorphic insects have also been excluded, as those with any serious interest will soon come across them. Nevertheless this book is an absolute must for any philatelist who collects insect stamps and is essential to entomologists who might like more than the real thing. That philately can be an adjunct to entomology was illustrated by our member Mr Alan Winters in his article in *Bulletin* 43: 83-87. Brian Gardiner

## REARING THE LEOPARD MOTH (*ZEUZERA PYRINA*) USING AN ARTIFICIAL DIET

by F. Garcia del Pino and A. de Haro

Translation from the Spanish by Gareth King (8585)

3 Colless Lane, London N15 4NR.

### INTRODUCTION

(For those who wish to consult the Spanish original, which contains photographic illustrations of the various stages of the moth and two tables on the life-history and statistical analyses, not reproduced here, the reference is: (1986) *Boletin San. Veg. Plagas* **12**: 281-289.)

The Leopard moth (*Zeuzera pyrina*) is one of the most important pests of fruit trees causing considerable damage to pear and apple trees especially. It is known to include up to 74 tree species in its diet so its impact cannot be underestimated.

Given that the majority of the larval stage is spent within the interior of the host plant a reliance on chemicals to treat an attack is not totally productive. The only way that insecticides can be made effective is by the use of very high concentrations; this cannot but be detrimental to the eco-system.

In order to understand the biology of this moth and thereby come upon a more efficient and less ecologically-harmful insecticide, it is necessary to resort to the laboratory. This is where artificial diets would come into their own. Obviously, it is not practicable to rear Leopard moths in nature where the larvae would be hidden from view.

Previously Moore, (1966) and Navon, (1977) have created the ideal artificial diet for the moth as well as providing a suitable medium in which the larvae can tunnel through, facilitating their observation in captivity.

### MATERIALS AND METHODS

The artificial diet as used contains the following ingredients: Soya beans which contain casein, an important element in insect diets. Yeast, containing vitamins of the B group and some Vitamin C and which has an important quality in protecting the aforementioned nutrients from destruction on heating. Skimmed milk powder is full of useful nutrients for larvae. Sucrose, which is used as a glucose substitute. Lineolic acid is an important fatty acid for insects which must be added artificially to diets due to its inability of being synthesised naturally. Vitamin C is a vital element for any plant-eating insect and is added at the fairly high rate of 0.5%. Agar consolidates (gells) the mixture, especially important

to enable the larvae to tunnel. Cellulose, whose presence keeps water away from the "galleries" and gives a texture to the artificial diet. Fungicide (Methyl paraben) keeps fungi away from the mixture. Bactericide (Cloramphenicol, Streptomycin, or Aureomycin) prevents bacterial infection which could alter the diet and cause the death of the larvae.

The proportions of the ingredients are given in Table 1. The preparation is as follows. First sterilise the soya beans in boiling water for 20 minutes, leave them to go cold and then put into a liquidiser with 300ml of water. Add dried yeast powder, milk powder, sugar, Vitamin C, linoleic acid, fungicide and bactericide, Liquidise thoroughly.

Meanwhile add the agar to 600ml of water, heat until boiling point and then leave to cool to 75° and then blend it into the rest of the diet in the liquidiser.

Table 1. Composition of the artificial diet to make 1 litre of artificial diet and proportions by percentage.

<i>Components</i>	<i>For 1 litre</i>	<i>by%</i>
Soya bean powder	100g	6.4
Dried skimmed milk	70g	4.5
Yeast	70g	4.5
Sugar	40g	2.5
Lineolic acid	3.4ml	0.21
Vitamin C	7g	0.45
Agar	24g	1.5
Cellulose CF11	140g	9.0
Methyl paraben	3g	0.19
L-Cloramfenicol	0.25g	0.016

### *HOW TO USE THE ARTIFICIAL DIET*

About 13g of the diet is poured into test tubes 20mm diameter by 60mm deep, which give enough room for one larva per test tube. The tubes are covered with a material such as clingfilm which protects the diet from drying out as well as from possible mould. The diet is changed each month until the larva is full-grown. Once having pupated the pupae are removed to other boxes prepared for the purpose of emergence.

In order to encourage the continuous breeding of the moth, certain conditions must be observed. Until the appearance of the second generation, larvae were kept at a mean temperature of 25°C a relative



humidity of 50-60% and a photoperiod 16 hours light and eight hours dark.

Those of the third generation were kept at a mean temperature of 26°C, a relative humidity of 60-70% but with the same amount of light to dark.

## RESULTS

Ova are normally laid in groups. Normally they are orange, but on occasions they have been observed as yellow. There is no relationship between colour and fertility. Period of incubation is between eight and twelve days.

Larvae normally hatch all at the same time. They measure some 2.5mm on hatching, they do not disperse but remain together covering themselves in silk. They remain so for some two days, eating the eggshells. They will then disperse, although what causes their eventual scattering has not been determined.

Whilst the larvae are still together in groups it is possible to conserve them in the refrigerator between 8-10°C for a maximum of four weeks.

Once they are placed in the artificial diet the larvae make tunnels throughout, reaching a length of some 35-40mm. They pupate in the same "galleries".

The pupae measure 30mm in length, the female specimens are somewhat larger. As with the neonate larvae, it is possible to conserve the pupae at 8°C, by doing so, synchronising the emergence of males and females if there are problems in getting both emerging at the same time.

In captivity the female adults are 25-28mm in length, the males some 5-8mm smaller.

The average number of ova laid by the females is 670 in the laboratory. In the wild it varies considerably, up to 800 have been recorded (Della Beffa, 1949).

## CONCLUSIONS

The larval stage of the Leopard moth, which in the wild (Spain) is some 11-12 months, under the controlled conditions of the laboratory is only three months.

Interestingly, in the wild there is a greatly staggered period of emergence. Audemard (1967) and Arias and Nieto (1980) noticed a period of at least five days after the males had emerged before the females had come out too.

With regard to the use of artificial diets over natural food in captivity, it was noted that the survival rate was considerable, facilitating the study

of this important pest. Survival rates were in the region of 86% for larvae, 85% for pupae and 63% for the successful emergence of the imagines.

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#### APPEAL FOR INFORMATION — HAMPSHIRE BUTTERFLIES

I am presently assisting with the compilation of a book on the butterflies of Hampshire, which aims both to provide accurate accounts of the insects themselves and to capture the spirit of entomology in the county past and present.

The author and myself would be grateful for any biographical information concerning Hampshire entomologists, in particular the late S.G.C. Castle Russell. We are especially interested in diaries, journals and accounts that convey their personal impressions of the species in nature, and in photographs that capture their experiences in the field. We would also be interested in any reference collections, or even single specimens, whose data might throw light on species' past distributions and abundance, and to know of any present day sites which might warrant closer investigation. We wish to assure you that all information provided will be treated with the utmost discretion and confidence.

If you can help please contact: Dr Leonard Winokur, 121 Avenue Road, Portswood, Southampton, Hampshire SO2 1BD or Mr David Jones, 43 Hillside Villas, Charlton Road, Charlton Andover, Hampshire SP10 4AQ.

## THE UNHEALTHY STATE OF SSSIs

### *from habitat*

Conservation organisations have repeatedly warned that the 1981 Wildlife and Countryside Act is failing to ensure protection for Sites of Special Scientific Interest (SSSIs) which it provided for. As a result Wildlife Link has published a specially commissioned authoritative review of the past decade's published evidence of damage to designated sites by an independent author. The report *SSSIs: A Health Check* shows conclusively that too great a proportion of our top wildlife sites are no longer in a healthy state. New and effective legislation is required urgently.

In 1980 prior to the 1981 Wildlife and Countryside Act, damage was estimated to have occurred to 13% of all SSSIs by number with 8700 ha (less than 1% of the total area) affected, and 2400 ha being damaged beyond recovery. Since the Act damage has been recorded on an *ad hoc* basis, with variation in intensity and coverage of recording between countries and counties. Around 5% of SSSIs are recorded being damaged in any one year during routine loss and lack of systematic recording and consistent definitions makes it impossible to determine if the incidence or amount of damage is increasing or decreasing.

The best available data come from visits to one third of SSSIs in England in 1990 under the new Site Integrity Monitoring Scheme. This indicated that 40% of the sites visited showed deterioration or damage, and 21% were under threat.

Damage to sites has been caused by agricultural activities such as drainage and over-grazing, by water authorities, and from forestry, pollution, mining, tipping, and recreational pursuits such as mountain biking and war games.

The report calls for seven important changes to legislation and also suggests an improvement of the practice within the current system. For example, the Government should advise planning authorities to presume against development within or adversely affecting SSSIs. It should also provide statutory conservation agencies with adequate funding and permanent staff to ensure proper monitoring, the production of management plans for all SSSIs within two years, management agreements for all threatened SSSIs within two years, and conservation ownership or management of SSSIs where appropriate.

Statutory conservation agencies are urged among other recommendations to monitor all SSSIs so that the real level of damage is known; review monitoring procedures to ensure compatibility between countries, the production of usable statistics, and consistency over time;

log outcomes of planning applications, public inquiries, consultations etc so that the extent of threats, and the level of success in dealing with them is known.

*SSSIs: A Health Check* by Terry Rowell is available price £5.65 inc p&p from Wildlife Link, 246 Lavender Hill, London SW11 1LN.

### THE BLAKE SHIELD COMPETITION FOR JUNIORS

The competition for the Blake Shield is open to groups of young people 8-16 years with adult team leaders.

It will be awarded for a Natural History/Conservation Project which may investigate a wood, pond, heath etc. observe plants, insects, animals and birds, note their characteristics, habits and requirements, or conduct a survey of a particular species. Reports should record the activities of the group, observations made, new things learned and may include photographs, drawings and paintings of the group in action and wildlife seen.

The competition is organised by the British Naturalists Association which is a national body for both novice and experienced naturalists which offers its members field activities, lectures, branch programmes throughout the country, field trips in the UK and abroad, natural history publications at reduced prices and four issues of *Country-Side* (the BNA's colour magazine).

Those interested must apply for an application form which must be returned not later than 30th June 1992. Apply to Blake Shield Competition, B.N.A., 48 Russell Way, Higham Ferrers, Northants NN9 8EJ.

### A NET DOESN'T HELP, OR, DID I SEE ONE AS WELL?

by Paul R. Cobb (9594)

34 Staithe Road, Heacham, King's Lynn, Norfolk PE31 7EE.

Like Brian Gardiner, I had an encounter last year with an apparent Large tortoiseshell that was too quick for me. It was on 24th August 1991 during an excursion of the Heacham and West Norfolk Natural History Society at Hilgay, only about 30 miles from Cambridge.

As we rounded a corner, a large butterfly shot out from the side of a wood, and set off at great speed along a track and over a hedge. I had a net in my hand, but the butterfly had gone before I could react. It was the right size and colour for a Large tortoiseshell, and I feel that is what it must have been — but I can't be sure. I believe the species is considered extinct in Norfolk now.

**A VERY LATE EMPEROR DRAGONFLY IN DORKING, SURREY**

by Muriel Woolven

9, Anstie Grange, Holmwood, Dorking, Surrey RH5 4LG.

On the morning of 26th November which was particularly warm for the time of year, as I was walking home just after 11am I saw what I thought to be a hibernating butterfly which had responded to the warmth and was flying about. However, as the creature flew around and passed me I could see it was a dragonfly.

I recognised it as an Emperor dragonfly (*Anax imperator*), a species I have often seen in the locality. I had seen one quite late in September, which surprised me, but then we did have a very mild autumn here in Dorking with warm nights.

I mentioned the 26th November sighting to a friend in the Surrey Wildlife Trust who suggested that the AES might be interested in this late sighting and if any members could tell me if this is a record. I shall look forward to hearing from them.

**A MASSIVE INFESTATION OF THE LARGE WAX MOTH,  
GALLERIA MELLONELLA**

by P. W. Cribb (2270)

One of my seven bee-hives appeared to be ailing as it produced only 40lbs. of honey, instead of an expected 100lbs, when I removed the honey supers in August. I replaced the empty supers to be cleaned up by the bees and three weeks later I went to remove them for storage. On taking off the hive roof I found the top super covered with a dense web. I dismantled the hive, consisting of two brood chambers and three supers, to find every comb in a similar state with only a few bees present in the bottom brood chamber, still with the queen, and a few sealed brood. It was obvious that the colony was beyond redemption so I killed the few bees remaining and removed all the hive to my home. Examination discovered hundreds of full-fed larvae; fat white grubs about an inch long with brown heads, many already sealed in their cocoons in every crevice of the comb frames and boxes. The cocoons are of strong white silk in which the larvae spend the winter, to pupate in the spring. Several were already pupae, however, and some moths had already emerged, indicating a possible second brood.

I placed them in my shed and moths were escaping and coming to light. The combs were almost totally consumed, covered with web and frass, and the larvae had bored into the frames, drilling neat holes to house their cocoons. This is my first experience of the devastation that this moth can cause to what had been a thriving colony of honey bees.

## CONTINENTAL WASP ESTABLISHED IN UK

by Clive Betts (4976)

Tony Marshall (*Bulletin* 50: 285) recorded a specimen of *Dolichovespula media*, a common European social wasp from his garden in Buckinghamshire and asked if any other UK records exist. Dr Mike Archer of The Bees, Wasps and Ants Recording Scheme (BWARS — address at the end of this article) is collecting records of this wasp, along with another continental species *D. saxonica*, which is also now being recorded in the UK. *D. media* and *D. saxonica* have established themselves in the southern part of the UK with nests recorded from Sussex and Norfolk. Both wasps are aerial nesters, their nests being similar in appearance to those of the British *D. sylvestris* — with silvery-grey layers of paper envelope rather than the yellow-brown scales used by the commoner *Vespula vulgaris*. *D. media* and *D. saxonica* are widely distributed on the continent and have increased in abundance in recent years. It is, nevertheless, remarkable that these two species have established in the UK over the same time period: it will be interesting to see how they spread over the next decade and whether this affects the distribution of our indigenous species. More information about these two wasps can be found in G.R. Else (1991) Bees and Wasps Wildlife Reports (*British Wildlife* 2(1): 51-62).

If you are interested in recording bees, wasps or ants, or have records you wish to contribute to the national recording scheme please contact the BWARS Secretary: Dr J.P. Field, Dept of Zoology, University of Cambridge, Downing Street, Cambridge CB2 3EJ.

All new recorders receive a “starter pack” and regular newsletters offering field trips, expert help and advice and interesting articles.

## VESPULA VULGARIS

by K.C. Lewis (3680)

Stuart Pittman's notes, *Bulletin* 50: 275, prompted me to recall my own observations of the wasp *Vespula vulgaris* during late August, 1991. Whilst sunning myself in my garden I observed several wasps perched on a branch of buddleia which overhung my greenhouse roof. The glass of the roof, eighteen inches below the branch, was very warm and had attracted many house flies. Once a wasp had singled out a potential victim it moved a few degrees in each direction from its central position (could it have been judging the fly's distance?). The wasp would then pounce. The majority of strikes were unsuccessful but if it was lucky it would fly off to the nest. However, on two occasions the wasp returned to its position on the branch where it consumed its prize. A few days later I was watching a common frog (*Rana temporaria*) catching flies from the

edge of my pond. The pond was also attracting many wasps which were alighting on the floating water weeds to drink. The frog, having spotted one of the wasps, leapt with lightning speed across the surface of the weed and on taking the wasp into its mouth was promptly stung. The wasp was ejected immediately, seemingly none the worse for its experience, but the frog clawed at its mouth with both hands and was undoubtedly in a very distressed state. Luckily I had a net at hand and was able to catch the frog and place it in a box with damp grass cuttings but by the following morning it was dead, no doubt from the closure of its throat. A few days later I had the unpleasant experience of knowing how the frog felt. Turning a corner at our local shops I was hit in the face by a wasp which then stung me four times around my eye and on my hand as I pulled the wasp from my face. Why is it they always seem to go for the eyes? Of the four or five times that I have been stung all have been on the face near the eyes.

### ***DOLICHOVESPULA MEDIA* IN SOUTHERN ENGLAND**

*by George R. Else (3881)*

Tony Marshall recorded a specimen of the social wasp *Dolichovespula media* (Retzius) from his Buckinghamshire garden in July 1991 (*Bulletin* 50: 285) and was interested to know if this wasp had previously been found in Britain.

This species was first found in England in August 1980, when a male was collected in Friston Forest, East Sussex, by S.J. Falk (*Proceedings & Transactions of the British Entomological & Natural History Society*, 15 (1982): 14-16). Since then the species has become firmly established in south-east England, with confirmed records from Kent to Hampshire, Surrey, Buckinghamshire, Hertfordshire, Essex, Bedfordshire, Norfolk, Gloucestershire, Hereford & Worcester, and Warwickshire. Many of these records are based on the aerial nests: these are most commonly suspended from the branches of shrubs and trees.

A second *Dolichovespula* species has also become established in southern England since 1987. This is *D. saxonica*, which is currently known from both East and West Sussex, and Norfolk. Nests of this species were found in all three counties in 1991. One nest was suspended from a rafter within a garage, two others from the eaves of houses (a photograph of one of these is illustrated in *British Wildlife*, 3 (1991): 52).

It is not known how these species arrived in Britain, but it is a remarkable coincidence that both have become established at roughly the same time and, having done so, have increased their range here so rapidly. Both have apparently become more widespread and abundant recently in western Europe.

An illustrated key to the five British *Dolichovespula* species (including the above) by G.W. Allen and M.E. Archer has been published in the *Entomologist's Monthly Magazine*, **125** (1989): 103-105. A paper of mine outlining the distribution of *D. media* in Britain, complete with distribution map and a photograph of an occupied nest, is in press in the same journal.

## NESTING RECORDS OF *DOLICHOVESPULA MEDIA*

by Mark Colvin (7356)

I have been actively involved in the pest control industry for approximately twelve years and recorded *Dolichovespula media* for the first time on 6th August 1989 in Crawley, West Sussex. The following list details all occurrences whereby I have been contacted to remove the nest of this species.

1. 6th August 1989 — Crawley, West Sussex (TQ 303371) — nesting in a honeysuckle approximately 2m above ground.
2. 26th August 1990 — Felbridge, West Sussex (TQ 365397) — nesting in a bush approximately 2m above ground.
3. 27th August 1990 — Ifield, West Sussex (TQ 254389) — nesting in a tree approximately 3m above ground.
4. 6th July 1991 — Crawley, West Sussex (TQ 298377) — nesting in a bush approximately 1.5m above ground.
5. 9th August 1991 — Crawley, West Sussex (TQ 265347) — nesting on the side of a building approximately 7m above ground.
6. 15th August 1991 — Crawley, West Sussex (TQ 344377) — nesting in the base of a bush approximately 0.5m above ground.
7. 19th August 1991 — Slaugham, West Sussex (TQ 253285) nesting in a bush approximately 4.5m above ground.

In my opinion this species, although still uncommon, is rapidly increasing its range throughout Sussex and will hopefully continue to do so in other counties where it has been recorded.

## CONTINENTAL WASP

by Paul R. Cobb (9594)

Further to Tony Marshall's note in the December 1991 *Bulletin*, *Dolichovespula media* was first recorded in this country in 1980 by S.J. Falk (*Proc. Trans. Br. ent. nat. Hist. Soc.* **215**: 14-16), and appears to be establishing itself. Here in Norfolk it appeared at three sites in 1990 (Irwin, A.G. *Trans. Norfolk Norwich Nat. Soc.* **28**(5): 390, 29(1): 32), two of them being nests in the garden shrub Laurestinus (*Viburnum tinus*). It is apparently a docile wasp, and not likely to make a nuisance of itself like some of its relatives.



## MORE PSEUDOSCORPION HITCH-HIKERS

by R.J. Barnett

G.W. Danahar's note on page 277 in the December 1991 *Bulletin* concerning a pseudoscorpion on a soldier fly, brings to mind a specimen in the collections of the City Museum and Art Gallery, Bristol.

The "General Museum Collection" of beetles, unfortunately untraceable beyond pre-Second World War, although containing material from the Stephen Barton collection, includes examples of the tropical Harlequin Beetle *Acrocinus (Macropus) longimanus*. Next to one such specimen are a number of mites, carded and annotated, with the hand-written label, "Acari parasited on *M. longimanus*". Next to these are two carded pseudoscorpions with the following label in similar fashion, "Pseudoscorpions preying on Acari on *M. longimanus*".

It would appear that in this instance the presence of a couple of hitch-hikers was of direct benefit to the encumbered host.

## PSEUDOSCORPION HITCH-HIKERS

by Paul R. Cobb

In partial answer to G.W. Danahar, hitch-hiking is well-known among pseudoscorpions (at least, well-known to the few people who study them), especially in the genus *Lamprochernes*, and the behaviour even has a name — Phoresy. On 20th August 1991 I noticed a pseudoscorpion in my garden attached to the leg of the hoverfly *Syritta pipiens*. It was identified as *L. nodosus* by R.E. Jones, who told me he did not know of a previous record on a hoverfly, dung flies being the usual form of transport.

## DOLICHOVESPULA SAXONICA FOUND BREEDING IN BRITAIN

by Mark Colvin (7356)

Sedgewick Close, Pound Hill, Crawley, West Sussex RH10 7BZ

On 27th July 1991, I was contacted with reference to removing a wasps' nest from the eaves of a house in Crawley, West Sussex (TQ 278359) so that the owner could carry out maintenance work on his property. Upon inspection a large proportion of envelope was found fixed to the exterior brickwork just under the gable end with the wasps gaining access to the main chamber, presumably in the soffit boards or cavity wall, through an unusual tunnel-like entrance. The loft space was inspected and no signs of a nest found. Numerous photographs were cautiously taken and several specimens caught for identification prior to removal.

The above specimens were unfortunately damaged but given to Robin Edwards, Rentokil Limited, on 13th August 1991, for identification and later confirmed as *Dolichovespula saxonica*.

On 14th August 1991, I was contacted to remove a wasps' nest suspended under the eaves of a house in Forest Row, East Sussex (TQ 434346) due to the nest being above the bathroom window and causing considerable nuisance. The nest, due to its construction, was obviously that of a *Dolichovespula* species and was removed intact from the property along with numerous specimens of all castes. The nest had the same tunnel-like entrance found on the one destroyed on 27th July 1991 and the specimens were suspiciously similar.

The specimens were tentatively identified by myself as *D. saxonica* and this determination was later confirmed by Robin Edwards. The specimens and nest have been presented to Dr M.E. Archer for further study.

G.W. Allen and M.E. Archer (*Entomologist's Monthly Magazine* 125:103-105) note that the male is very light coloured; being unusual for this species when compared with continental specimens. The males taken by myself were predominantly dark with several exhibiting lighter coloration and all varying considerably in size; the queens and workers however being fairly uniform.

At the time of writing only two specimens of *D. saxonica*, both males, have ever been recorded in Britain, the first taken at Dorking, Surrey on 31st July 1987 (G.W. Allen and M.E. Archer, Reference as above); the second found in North Walsham, Norfolk in August 1990 (A.G. Irwin, 1991, *Transactions of the Norfolk and Norwich Naturalists Society* 29:32).

Although extremely rare in Britain, this species has probably been overlooked due to the difficulty in field determination of single specimens. On the strength that two successful breeding colonies have now been found it is proposed that *D. saxonica* be formally added to the British List of Insect Fauna.

## WASPS ATTACKING DRAGONFLIES

by Paul R. Cobb (9594)

Stuart Pittman's account, in the December 1991 Bulletin, of a wasp attacking a butterfly also refers to wasps attacking dragonflies. In 1969 at Lenwade in Norfolk I watched a wasp *Vespula* sp. kill a hawker dragonfly *Aeshna cyanea*, apparently stinging it to death. And I recall reading, but can no longer trace the reference, an account of a similar battle in Norfolk in which the dragonfly was the victor, and ate the wasp.

## STUDY GROUPS — TIME TO SET ONE UP?

by Duncan Reavey (6934)

Scattered all over the country are a diversity of study groups specialising in many of the weirdest and most wonderful branches of entomology. Look in your copy of *A Directory for Entomologists* and you will find groups as diverse as the Empid and Dolichopodid Study Group, the Phasmid Study Group and the Yorkshire Lepidoptera Group. Others are more outlandish.

Over the years this Society has played its part in the spawning of groups like the Exotic Entomology Group, now independent and thriving. Why not use the Society to get your own ideas (dreams?) turned into reality? If you want to set up or extend a study group in anything entomological, the Society is here to help get things moving, then keep things ticking over. We can give

(1) Initial publicity in the *Bulletin* or (for last minute announcements) the Wants and Exchange List - this could simply be a request for others with a similar interest to get in touch, or perhaps the announcement of an informal meeting at your home, at the Flea and Fly, or in the field.

(2) Space in the *Bulletin* for reports on group meetings and other activities — a chance to enthuse potential new participants.

(3) Table space at the Annual Exhibition to promote the activities of the group.

So think about it. If YOU would benefit from being part of an informal study group, the chances are that others would too. You do not need to be any sort of an expert in the field. All you need is the willingness to share your experiences and learn from others. I myself cannot see why there are not study groups of, say, insect photographers, or of European butterfly enthusiasts. All it takes to get things moving is enthusiasm and a note in the *Bulletin*. I know the Editor is looking forward to hearing from you.

## ABUNDANCE OF SILVER Y MOTH IN STAFFORDSHIRE IN 1991

by Jan Koryszko (6089)

During August and September last year quite large numbers of the Silver Y moth (*Autographa gamma*) were seen in gardens at Meir, Weston Sprink, Parkhall Country Park and Barlaston Rough Close Common. During September also, my friend Miss Kate Flanigan, a well-known Staffordshire cross country runner, informed me that hundreds of these moths were being trampled underfoot by athletes training on the floodlit tracks of Northwood Stadium. This occurred on several training sessions there throughout the month.

## BBCS BOOKLETS

The British Butterfly Conservation Society has been in existence for quite some time, but I have only recently had BBCS booklets in my possession. Of a list of 11 booklets, either available or in production, I have two: *Butterflies of the Southern Chalk Downlands*, and *Woodland Butterflies*. These are excellent, attractively illustrated introductions to their subjects.

The former is a 24 page booklet — authors, Simon Grove and Greg Herbert, illustrator, John Norton. It introduces the blues, the skippers and the fritillaries which may be found among the downland grasses and flowers. The species Marbled white, Green hairstreak and Brown argus are included. Small heath is mentioned among “Other butterflies to be found . . .”. In the southern Hampshire chalk downs, Portsmouth area, I have found the delightful Small heath butterfly in great abundance, but this may just be a local issue.

*Woodland Butterflies* is a 48 page booklet — author Caroline Steel, illustrators, John Norton and Alison Waters. After an introduction to woodland habitats there follows a sensible division of species accounts into three breeding site categories. The line illustrations which accompany the text are particularly attractive. A chart showing flight periods is also included.

For information on the BBCS and its booklets apply to Tudor House, Quorn, Loughborough, Leicestershire LE12 8AD.

Frank Marples (8226)

*An atlas of Norfolk butterflies 1984-1988* by M.R. Hall is published by the Norfolk branch of the BBCS. It is a well-printed A5 booklet with distribution map and text for each species, in most cases accompanied also by a histogram, for the year 1986, which gives the number of sites on which a species was recorded in each week during its flight period. Each species occupies a page, with the top half being of the map and histogram. The text is a useful mix of ecology, history in Norfolk and possibilities for further recordings. As is so usual now, attention is drawn to how the decline of some species (Small copper for instance) can be directly linked to the development of habitats. On the other hand it is pleasing to read that the Swallowtail is doing well and possibly even extending its range. An added bonus in the booklet is the superb line drawings by Doug Hammersley. Clearly well-researched and collated with an impressive list of contributors occupying almost a page. There have, however, been a few slips in the proofing. A couple of scientific names not in italics; *Polyammatus* for *Polyommatus* for instance and on page 46 the Silver-studded blue looks more chalk than silver. Minor

blemishes which do not detract from the usefulness of this book for the butterfly enthusiast. Price £2.95 plus 30p postage from the author: "Hopefield", Norwich Road, Scole, Diss, Norfolk IP21 4DY.

## BOOK REVIEW

*Mosquitoes* by Keith R. Snow with plates by A.J.E. Terzi. A5, 66pp, 4 coloured plates, numerous figures. Naturalists' Handbooks No. 14. Richmond Publishing Co. Ltd., 1990. Price £13.00 hardback, £7.95 paperback. (ISBN 0-85546-276-0 and 275-2.)

This is one of the latest publications in the excellent Naturalists' Handbook series published by the Richmond Publishing Co. Ltd. The book, being handbook number 14, is laid out in a very usable fashion with identification keys covering all the 32 species of mosquito recorded in Britain. The introduction deals with their biology, classification, public health importance and control, followed by sections on life histories, identification of the known British species and a guide to their study. Four excellent colour plates, by A.J.E. Terzi, covering eight species are included.

Mark Colvin

## BUTTERFLY AND BUG BONANZA WEEKEND

The Radnorshire Wildlife Trust is holding a series of Wildlife Conservation Weekend Breaks based in the heart of mid-Wales, an area renowned for its low population and variety of wildlife.

From 26-28th June 1992 there will be a fascinating Butterfly and Bug Bonanza Weekend spotting butterflies, dragonflies and bugs within the fantastic variety of habitats available in Radnorshire. The holiday is based within the Elan Valley and numbers are strictly limited to enable maximum personal attention. There will be two moth-catching evenings, pond dipping and plenty of local expertise.

The weekend is fully residential and includes meals and a packed itinerary. The cost is £95.00 and any profits made will go towards wildlife conservation in Radnorshire.

For further details and a booking form, please contact the Marketing Officer, Radnorshire Wildlife Trust, 1 Gwalia Annexe, Ithon Road, Llandrindod Wells or telephone 0597 823298.

For those who might prefer "other orders" there is a MAMMAL MANIA weekend 18-20th September which will encompass bat spotting, badger watching, otter-ogling and rare sightings of dormice.

HAVE FUN WITH FUNGI is on 16-18th October. Anyone who is interested in fungi will be delighted with this weekend. A wonderful opportunity for all to get involved in identifying and examining a wide variety of fungi specimens and habitats which are plentiful is the Elan Valley area.

## BOOK REVIEW

*The moths and butterflies of Spurn* by B.R. Spence. A5 paperback. Pp.118. Coloured covers, map and black and white plates. Spurn Bird Observatory, Kilnsea, via Patrington, Hull HU12 0UG. 1991. Price £5.00 and 50p postage and packing and is available from the author at Spurn.

This is a remarkably fine local list covering a very limited area, the Spurn Nature Reserve and the adjoining area to the north-east of Kilnsea on the northern edge of the Reserve. The small area covered in this book happens to have had recorded in it some third of the British species (even if only as singletons) and as the author implies and we suspect, the micros are almost certainly under-recorded. Nevertheless Spurn is the only Yorkshire site for 18 of them. The fact that 17 micros and 11 macros were first recorded in the past two years indicates more are yet to be added to the list.

The author is Warden of the Reserve and has operated a light trap there for 22 years, so this list has the advantage of continuity of recording and so for many of the species it has been possible to give an account of their fluctuating fortunes. In addition the area has attracted lepidopterists in the past and their records have been collated into the list so as to give a comprehensive picture of the lepidoptera fauna of this unique area.

The brief introduction gives an account of the past history, methods used in recording, the various habitats within the area and there are three pages of references. The order followed is that of *An indexed list of British butterflies and moths* by Bradley and Fletcher with their numbering. The map, inside of the back cover, shows the various locations of the area and the black and white plates illustrate these. It is pleasing to report that these are quality half-tones and not the often-found fuzzy Xerox quality too often seen in books today. One criticism, however is of the unfortunate use of **bold italic** type for the scientific names, this bold then being continued for the author and English vernacular name. Why the unusual choice of **Bold italic**? In this instance it is most unfortunate that in the typeface used the "e" is almost indistinguishable from the "c". To take an example, is genus 929: *Piercea*, *Picreca* or *Piereca*? I need my magnifying lens. This book is a must, not just for those who might like to visit the area, but for anyone with an interest in Yorkshire lepidoptera and it could also serve as a stimulus to investigate whether the same species occur on the southern bank of the Humber in Lincolnshire.

Brian Gardiner

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A symposium to be held in the rooms of the Royal Entomological Society of London, South Kensington.

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If you wish to receive further information and registration details please apply to Dr M.A.J. Williams, International Mycological Institute, Ferry Lane, Kew, Surrey TW9 3AF (telephone 081-940 4086; fax 081-332 1171).

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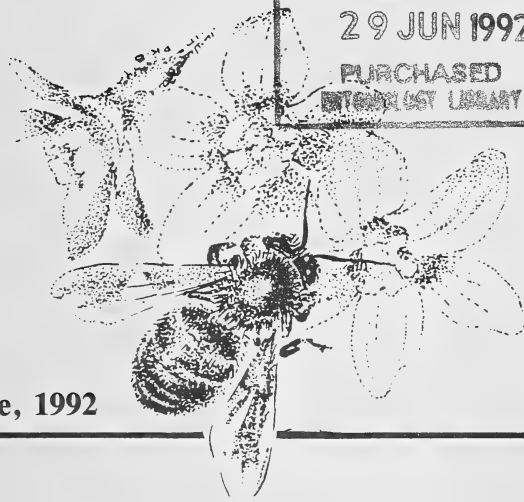
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# The Bulletin of the Amateur Entomologists' Society

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BRIAN O. C. GARDINER, F.L.S., F.R.E.S.

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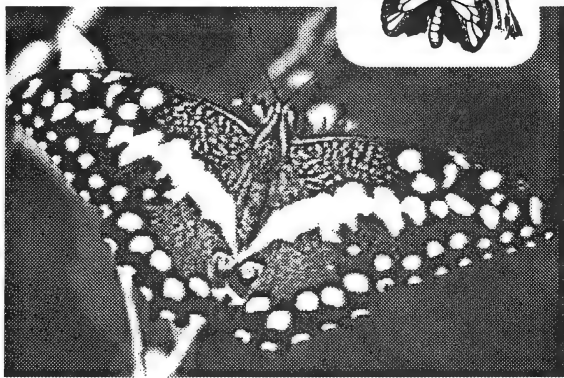
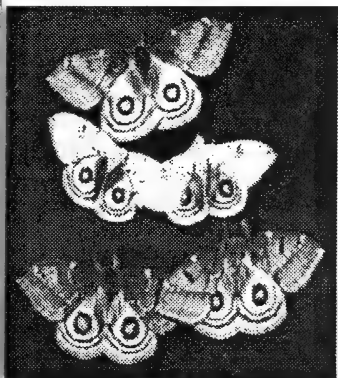
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# AES BULLETIN

No. 382



## JUNIOR SECTION No. 2

by Darren J. Mann (8181)

Well, it's time for me to write something to go in front of the articles that make up the Junior Section. Some readers are probably a little surprised to see this junior bit, thinking that with the recent omission from the February and the April *Bulletins*, it had all come to an end. Well, it has not. I thought it best that there should be only three per year, at least until such time as there is sufficient material to warrant a Junior Section in every *Bulletin*. Junior Sections will appear in the February, June and October *Bulletins*. So anyone with suitable articles should send them to me.

The 1991 Fieldweek write-up will appear in the October *Bulletin*. This delay is because of the inclusion of some colour photographs.

\* \* \*

## Making a simple pit-fall trap

by Darren J. Mann (8181)

A pit-fall trap is an effective method of collecting crawling insects and other invertebrates throughout most of the year. They are easy to make and can be left at a site, and so continue to catch insects long after you have gone home. There are many different designs of the pit-fall traps. The trap I use is made from a plastic soft-drinks bottle.

Firstly, wash the bottle out because when pop evaporates it leaves a sticky residue, in which insects may become stuck and then die. The next step is to make some holes in the bottom of the bottle. Some of the pop bottles (i.e. Coca-Cola) have a black base which has to be removed. There are several methods of removing this base, including holding the base in one hand and the bottle in the other, and twisting. When this fails to work (which it often does) try placing the bottle in hot water and then

repeating the twist. If this still doesn't work, find a bottle without the black base, which I suppose I should have said to do in the first place.

The holes can be made with any sharp instrument, and need to be about 2 to 3mm across; any larger and you will lose some of the insects you have caught. These holes allow rainwater to drain out, thus preventing the trapped animals from drowning.

Next, cut the bottle into two. The cut should be about 10mm from where the bottle starts to funnel. There is usually a slight ridge at this point (Fig. 1). The top half of the bottle should be turned upside down and placed in the mouth of the bottom half. If you have made the cut in the correct place the top should (in theory) become wedged in the bottom half (Fig. 2). The top half of the bottle now forms a funnel into the bottom, down which the insects fall or crawl. Place some leaf litter in the bottom so that the captured animals have somewhere to hide.

A variation on the above is, once the trap is made as described, to place a smaller sized bottle, or large yoghurt pot inside, thus creating an inner chamber. The end of the funnel being directly above the top of the inner chamber (Fig. 3). The main advantage of this trap is that you do not have to re-dig the hole in which you place your trap every time you take it out of the ground.

To use the trap you have now made, you need to dig a hole in a suitable area, such as your garden (but not in your parents' flower beds!), on waste ground or in a local park — in fact any local area will suffice. Always make sure you have permission from the land owners before putting your trap at a site. Pit-fall traps can cause problems for livestock and non-entomologists, so be careful not to put your trap in farm fields or on paths, unless you're a big game hunter!

Once your trap is in the ground, place a couple of stones or piece of wood over the top of the trap leaving a small gap (Fig. 2). This will cut down the amount of rainwater entering the trap, and also hide it from possible vandalism.

Try to make a map of the area where you placed your trap, or use a marker such as a large stick, so that you do not forget where you left it, or lose it when the plants around the trap grow. I once put a trap in a local park in a large grassy field in late February. Although I visited the trap regularly, by the end of May I could not find it anywhere. The whole field was covered with hogweed and other tall herbaceous plants. To this day I'm still not sure what happened to it.

Pit-fall traps can also be baited, using meat, fruit, beer or dung. You can try your own recipes and find out which bait attracts the most species. Baited traps attract a different variety of insects. When you use meat baits, such as fish, you will attract the large burying beetles

Fig. 1

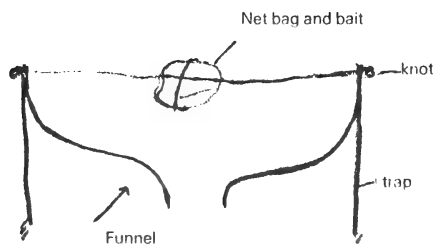
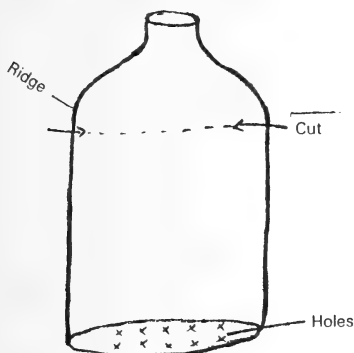


Fig. 4

Fig. 2

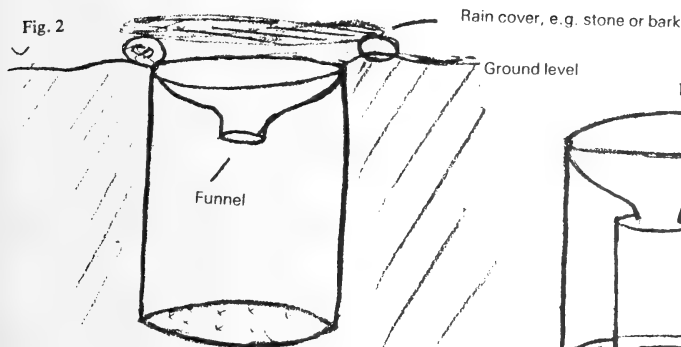
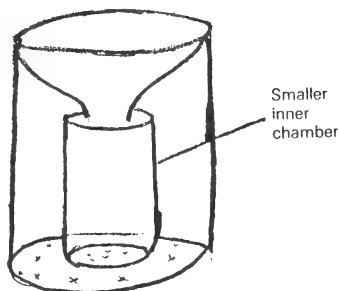


Fig. 3



(*Necrophorous*). Bait can be placed in your trap by one of two methods, the easiest method being just to stick the bait directly into the bottom of the trap. One problem with this is that all the captured animals are covered with mud and the trap smells.

Another way of baiting the trap is to put the bait in a small net bag, then using some string, suspend the net bag just above the trap entrance (see Fig. 4). The problem with this is that it is more time consuming and not all the insects attracted will fall into the trap.

Traps should be checked every week, so that any mammals caught can be released, and so that invertebrates of interest are not eaten or do not escape. When it comes to that time of the week when the traps need to be emptied, a few useful things to take along are: either a tray (i.e. an old baking tin or polystyrene meat tray) or some polythene sheet; a trowel to dig out and replace your trap; and of course not forgetting some collecting tubes in which to place the specimens you want to keep.

Empty the contents of the trap onto the sheet or tray. This enables you to sort out your catch into specimens you do or do not want in the field, which means that you have less work to do at home. The specimens that you don't want can be released near some cover. When sorting-out traps I like to use a couple of medium-sized jam-jars filled with tissue paper. All the specimens that I want to keep are thrown into the jars. This method saves on the number of collecting tubes that I need to take out with me, plus I don't have to fumble about trying to find an empty tube or to get the lid off a tube in my hand. Using these jars also helps clean the insects, as they run about and rub against the tissue. After a while they will also begin to clean themselves. Make sure that you use a separate jar for each trap (or site or grid square) so that the data you have collected does not get mixed up.

There are additional things that you can do with your pit-fall traps, such as having chambers which contain preserving agents which kill and pickle the insects caught. This means that the traps can be left for longer periods of time. Where you place your trap can have an effect on the number of species and individuals caught — such as placing the trap in the entrances of mammal burrows, or near a river.

Using this type of trap I have caught many interesting invertebrates, including some rare species, and had hours of pleasure sorting out the trap contents.

Happy trapping!

Further reading: Cooter, J. (1991). *A Coleopterist's Handbook*, 3rd ed. 294pp. AES Publications.

## **Insects of Portugal**

*by Jenni Johnstone (9124J)*

I always love going on holiday abroad with my family because I am usually able to see more insects than I would normally see in Britain. Last year, we stayed in the South of Portugal, which proved to be very interesting.

As none of my family are very interested in insects, I found myself wandering off to "hunt for insects", equipped with my camera. My first interest is in Lepidoptera, so naturally I was looking especially for butterflies and moths. I was rewarded with several sightings of Swallowtails (*Papilio machaon*), which I have never seen in Britain. I also saw some familiar species such as the Clouded yellow (*Colias croceus*), Red admiral (*Vanessa atalanta*) and the Painted lady (*Cynthia cardui*). Among the many species of moth I saw, was the Hummingbird hawkmoth (*Macroglossum stellatarum*), another species which I had not encountered back home.

Another group of insects, the Coleoptera (beetles), provided an unexpected visitor in every corner. The nearby beach was host to many Lesser stag beetles (*Dorcus parallelipipedus*) which were always accompanied by a look of horror on my sister's face. Our first day on the beach, my Dad was "welcomed" by one such beetle trying to "bite" his heel!

By far the most beautiful and eye-catching insects were the dragonflies which would fly continuously over the pool. I do not know which species they were, but many of them had a greenish-blue tint to their wings.

One thing, however, spoiled my otherwise enjoyable holiday and that was the piles of litter that were scattered up in the mountains. It made me very angry to see beautiful butterflies flying over heaps of rusty metal!

### **FURTHER RECORDS OF THE SPREAD OF THE SPECKLED WOOD BUTTERFLY IN STAFFORDSHIRE**

*by Jan Koryszko (6089)*

Since my last report (*Bulletin* 50: 91), a number of new records have been sent to me by other members. Mr R.H. Heath reported a specimen of the Speckled wood (*Pararge aegeria*) in his garden in Meir in September 1991. Also he has recorded a Gatekeeper (*Pyronia tithonus*) again in his garden.

Other Speckled wood records are from Hemheath Wood and Longton. I have also had reports from Mr Brian Mitchell who lives in Warwickshire. He has sent me a number of records on his visits to Staffordshire, the first from Burnt Wood in 1989, 30th May, two Speckled woods. Also from the Newport-Gnosall disused railway line, three butterflies.

Mr Mitchell informs me that this species was rediscovered at Alvecote in 1984 following an absence of almost 27 years, along with the Gatekeeper after an absence of 25 years. Gatekeepers also occur around Pretty Pigs Pool at Alvecote just inside the Staffordshire border. The Speckled wood and Gatekeeper have undergone a marked increase and spread in recent years in Staffordshire.

I visited Burnt Wood with Mr Alan Flanigan and Derek Heath on 12th September 1991. Quite a number of Speckled woods were seen, flying, and on sunspots. I myself almost put my foot on a four foot long female grass snake while looking on the ground at sunspots. She too was sunning herself, but soon darted down a hole.

The Speckled wood in recent years seems to be becoming established at Burnt Wood, but only time will tell.

Many thanks to R.H. Heath and special thanks to Brian Mitchell for writing.

## ENTOMOLOGICAL STUDIES IN RELATION TO BADGER ECOLOGY — A REVIEW.

by M. Hancox

72 Bisley Old Road, Stroud, Glos. GL5 1NB

Insects are an important element in the ecology of the Eurasian badger (*Meles meles*); and yet surprisingly few systematic studies have been carried out in this field.

### 1. Diet.

Although insects comprise only 4% of badger diet overall by volume, the frequency of occurrence is often nearer 100% during the warmer months. Almost any species of about 1cm in length may be taken, the commonest being ground beetles and lepidopteran caterpillars, and the larvae of flies and beetles. Bulk consumption of bee or wasp nests and dor beetles also occurs in the summer (Hancox 1989, 1991a, 1992 in press). Geographical range of eg *Carabus* sp. can be elucidated.

2. *Dung Fauna.* The insect fauna of badger dung has been virtually ignored, but may be of considerable interest (Hancox 1991b).

3. *Carrion.* Insects, particularly fly larvae, may be important badger carcase decomposers (Hancox 1991c).

4. *Bedding Fauna.* A wide range of insects occur in bedding which may be brought out for airing at badger setts, and can be extracted by hand sorting or a light/heat funnel arrangement (Hancox 1988).

5. *Parasites.* A number of insect species occur jointly in the dung and bedding faunas, and a further area of overlap of certain species is amongst ectoparasites.

Fleas are not uncommon on road traffic casualty badgers, most being *Panercas melis*, although one record from Scotland of *Chaetopsylla trichosa* may derive from imported foxes, and the human flea (*Pulex irritans*) has also been recorded (Hancox 1980). Lice are very common, and some four species of ticks (*Ixodes*) plus assorted mites including those causing mange (*Sarcoptes*) have also been reported from Britain.

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## BUTTERFLIES AROUND EINDHOVEN, THE NETHERLANDS, PART II

by Alan Butler (7903)

14, Willow Close, Towcester, Northants NN12 7BQ.

Following my article in 1990 on butterflies around Eindhoven (*Bulletin* 49: 265) I thought that it might be of interest to follow this up with another article, concentrating on those species known to occur in this area, but which I had previously observed.

As in the United Kingdom, 1990 proved to be a somewhat unusual year with very hot and dry periods, particularly in July and August. Looking back, I consider that the year was generally quite good for the majority of butterflies, with some species such as the Brimstone (*Gonepteryx rhamni*), the Purple hairstreak (*Quercusia quercus*) and the Map butterfly (*Araschnia levana*) being particularly abundant. In contrast to the previous years the Holly blue (*Celastrina argiolus*) did not seem to be so well represented in either the spring or summer broods, although it was by no means scarce. With the exception of the Silver-washed fritillary (*Argynnis paphia*), all the previously-mentioned species were seen. Together with six additional species, which will be described below, this brings the total number of species for the surrounding area to thirty seven. I believe that another eight or so species still elude me! A checklist of the species seen to date is given at the end of the article.

I mentioned previously that the chequered skipper (*Carterocephalus palaemon*) has been recorded in this area and an intensive search began in the month of May in a wooded district to the north of Eindhoven.

Preparation for the hunt began a few weeks earlier with several detailed local maps and a copy of H.M. Tax's *Atlas of the Dutch Butterflies*. I had isolated several possible woods, although none struck me immediately as being "just right" for the species. The woods around Eindhoven are mostly coniferous and inclined to be very dry. However, in the district to the north of Eindhoven, around the town of Best there are several deciduous woods, these being predominantly of poplar trees. The poplars are all planted in straight lines typifying Dutch efficiency and neatness. These woods were originally planted many decades ago to supply the local clog-making industry which still survives in this area. On entering the woods one is greeted by an overpowering sickly-sweet smell of the newly-budded poplar trees. The first few days of searching during the last week of April proved to be non-productive, apart from the strange call of the "Wielwaal", which is the Dutch name for the Golden oriole (*Oriolus oriolus*). I had never seen or heard this bird before, and it turned out to be quite a familiar sound in several of the woods which I visited throughout the rest of the early summer. According to a local

farmer the Golden oriole is a regular visitor here each spring. Getting back to the subject in question, I was at last rewarded on the 6th May with a single example of the Chequered skipper which was freshly emerged and obliged by letting me take several photographs (fig. 1). It took a while to establish the status of the species and in fact over the following two weeks I had just one or two sightings on each visit. Finally in the last week of May, it became evident that the emergence of the species was at a peak.

I found the butterfly to be rather localised within its habitat but quite widely distributed over the region. Later in the season, discussion with a warden on a reserve to the south of Eindhoven revealed that the species is to be found there in good numbers also. The intensive search for the Chequered skipper also revealed the Orange-tip (*Anthocaris cardamines*) in good numbers (first sighting 16th April), this being a species which had eluded me, apart from a singleton, the previous three years. I was very pleased to see this species since in England I had always regarded its appearance as one of the first signs of spring. It still remains a mystery to me that the species should be somewhat localised whilst its larval foodplants are widely distributed.

The next interesting species that I was to see was, unfortunately, the result of pure good luck. I chanced to see a single example of the Large tortoiseshell (*Nymphalis polychloros*), during a lunchtime stroll at work on 22nd May. Of course, I had neither my net nor my camera with me. The butterfly was in remarkably good condition, being observed at very close quarters as it sunned itself on a sunlit south-facing brick wall. It turned out to be the only sighting that I had, despite regular searching. The species is recorded as occurring locally, but as in England its appearance is rather sporadic, and I believe that its precise status as a breeding butterfly is not clear. Several older local entomologists have spoken of the "good-old-days" when the species was to be seen regularly in this district. As far as I can ascertain the nearest regular breeding populations are centred around the Ardennes district in Belgium and in Luxembourg.

Following the success with the Chequered skipper, I decided to follow exactly the same procedure to try and locate the Large chequered skipper (*Heteropterus morpheus*). My hunt began in the middle of June. This was a new species to me, and systematic searching of suitable habitats to the south of Eindhoven brought almost immediate success. The first example was observed, together with the Large heath (more about that later) on 17th June. Largest numbers of the butterfly were seen at a reserve known as the Peel. This is a large peatbog reserve, being an isolated remnant of a previously extensive bogland region. The species was well-known to the warden as was the Chequered skipper. I found the



Large chequered skipper at several sites in the district and in much greater numbers than the Chequered skipper. Reference to the Atlas shows however that the Chequered skipper occurs over a greater area and that the population densities are similar. My data is obviously not sufficient to draw a real conclusion. I should mention that the reserve itself is well worth a visit if anybody is in the area. It is a well known reserve for birds and is a breeding site of the Golden oriole, Bluethroat (*Luscinia svecica*) Nightingale (*L. megarhynchos*) and other summer visitors. I understand that the site is one of major European importance for the Bluethroat. It is perhaps best known as a large breeding site for Black-headed gulls (*Larus ridibundus*) which draw visitors in their tens of thousands each spring. The sound from the breeding gulls is deafening! For me the reserve is particularly interesting since the Smooth snake (*Coronella austriaca*) is also found here (although I have not yet seen it myself).

As I just mentioned, the search for the Large chequered skipper also turned up the Large heath (*Coenonympha tullia*). This came as no surprise in fact since I had spoken to a local entomologist, who assured me that the Peel was indeed a good site for the butterfly. Although it was flying in company with the Large chequered skipper it appeared to be extremely scarce and localised, even within the reserve. Despite searching the other bogland sites close by I was unable to locate the presence of the butterfly. When I spoke to the warden at the reserve, he was not aware of the presence of the species there, and indeed I had to convince him first that I had not mistaken the butterfly for the Small heath (*C. pamphilus*).

Even now I am still not sure whether he was really convinced! Although it is not permitted to take specimens from the reserve, I was able to take a couple of reasonable photographs (fig. 2) so there remains for me at least no doubt as to the correct identification! According to the warden the butterfly was once abundant at the reserve some thirty years ago, which correlates with the information from the local entomologist who first told me of the existence of the species at the Peel. Next year I will of course return to the area to try and establish the status of this species, but currently my view is that it is extremely rare.

Going now to the other species in my search, I visited the wooded district to the north again, in search of the White admiral (*Limentis camilla*). This species is also shown in the distribution maps in the Atlas to occur in this district. I was rewarded on the first visit to the area at the end of July, following our return from holiday in France. I found the butterfly in good numbers in most of the woods visited. Their tatty appearance suggested that they had probably been on the wing for a couple of weeks already. This ties up with my observations of the species in France some three weeks earlier. In company with the White admirals



Fig. 1. Chequered skipper (*C. palaemon*)



Fig. 2. The Large heath (*C. tullia*)

several Ringlets (*Aphantopus hyperantus*) were also observed. Although I have seen this species previously in Holland, this was the first observation within the local district.

At the end of July I began in search of the Alcon blue (*Maculinea alcon*). My search took me to the same locations that I had visited for both the Large heath and the Large chequered skipper. I had no luck there! Nor could I find the rather conspicuous gentians (*Gentiana pneumonanthe*) which are the foodplants of the larvae. I switched my search to an area to the north, this time north of Best to a marsh area known as the Kampina. This is a heathland nature reserve owned by the Natuurmonumenten which is a Dutch organisation concerned with the conservation and maintenance of sites of particular importance for natural history or of outstanding beauty. Here I found the gentians growing in isolated pockets, but no signs of the butterfly. My visit did not go totally unrewarded however, with my first sighting of a Black woodpecker (*Dryocopus martinus*) making the day worthwhile. On the 28th July the hunt for the butterfly took me to a small site to the north-west of Eindhoven where in my last article I mentioned that I had seen Silver-spotted skippers (*Hesperia comma*) flying in company with Graylings (*Hipparchia semele*). This is one of my favourite local sites and I could already feel that this was going to be a lucky day. Here the gentians were growing in profusion, although highly localised. Close inspection of the plants revealed the presence of some small white ova. Once I had located a few of these they became rather obvious. In one small area of perhaps 20 square metres, about 20% of the plants had ova deposited on them, with some plants having up to six or eight on a stem. It was therefore clear that the butterfly must be here in good numbers. Searching the immediate area revealed just a few adult butterflies. It seemed that they could easily be overlooked since they were reluctant to fly and only showed themselves if disturbed. Having said that, I should also add that whilst it was a warm day, the sky was a little overcast. Unfortunately I had insufficient time to recheck the other sites for the butterfly, but conclude that they may well be present, although highly localised, as suggested by the data in the Atlas. Next year I will make an earlier start to try to establish more precisely the status of this species. It may be worth mentioning that according to the literature two subspecies of this butterfly used to occur in Holland. The subspecies of the coastal dune areas in the west is now believed to be extinct. The subspecies in my district is ssp. *ericae* and is regarded as being rather rare. It is dependent upon the ant species *Myrmica ruginodis*. I have to admit that my knowledge of the ants is rather limited and I have not identified the ant species to be found in the same area as the butterfly.

I would conclude that it has been a successful year for me. Next year I need to concentrate on those species which still elude me, namely the Queen of Spain fritillary (*Argynnis lathonia*); the Pale clouded yellow (*Colias hyale*), the Clouded yellow (*C. croceus*), the Black-veined white (*Aporia crataegi*), the Purple emperor (*Apatura iris*), the Camberwell beauty (*Nymphalis antiopa*), the Brown argus (*Aricia agestis*), and the Grizzled skipper (*Pyrgus malvae*). Of these the first three are migrants (although the Queen of Spain fritillary is resident in the northern and western coastal districts of Holland) and apparently can be observed in varying numbers in most summers. The Black-veined white, Purple emperor, Brown argus and Grizzled skipper should all be possible to locate since they are listed as resident species in this district (although considered to be very scarce and localised). In my mind, locating the Camberwell beauty will prove to be the biggest challenge of all, but having found the Large tortoiseshell I remain optimistic!

In addition to the species cited above, during the past four years I have recorded the following butterflies in the vicinity of Eindhoven:-

Large, Small and Green-veined whites (*Pieris brassicae*, *rapae*, *napi*), Swallowtail (*Papilio machaon*); Red admiral (*Vanessa atalanta*); Painted lady (*Cynthia cardui*); Small tortoiseshell (*Aglais urticae*); Peacock (*Inachis io*); Comma (*Polygonia c-album*); Common blue (*Polyommatus icarus*); Silver-studded blue (*P. argus*); Small copper (*Lycaena phlaeas*); Green hairstreak (*Callophrys rubi*); Ilex hairstreak (*Nordmannia ilicis*); Meadow brown (*Maniola jurtina*); Gatekeeper (*Pyronia tithonus*); Speckled wood (*Pararge aegeria*); Wall (*Lasiommata megera*) Small skipper (*Thymelicus sylvestris*); Essex skipper (*T. lineola*); Large skipper (*Ochlodes venata*).

## MIGRANT MAGIC IN DEVON IN 1991

by Martin Catt (7854)

We live in East Prawle, Devon's southernmost village from where my wife and I run walking and wildlife holidays. During 1991, within an hour's walk of our home, we recorded 39 species of butterflies. Initially it was a poor migrant year until late summer when we saw over 20 Clouded yellows (*Colias croceus*). On 4th August a Bath white (*Pontia daplidice*), a Long-tailed blue (*Lampides boeticus*) along with hundreds of Painted ladies (*Cynthia cardui*) and Red admirals (*Vanessa atalanta*). On 21st September a female Queen of Spain fritillary (*Argynnis lathonia*) and during that week also (21st-28th September) we seemed to have Convolvulus hawkmoths (*Agrius convolvuli*) everywhere: dead on the beach; around the few lights in the village; in the pub garden; a maximum of 35 on the Coastguard station wall. We also noted a number of migrant dragonflies.

## AES ADVISORY PANEL — ADVISERS WANTED

Advisers on the identification, etc of the following orders are required for inclusion in the new list in preparation. **Coleoptera (Staphylinidae); Ephemeroptera and Plecoptera; Heteroptera (Terrestrial).**

If able to assist please inform AES Registrar, 22 Salisbury Road, Feltham, Middx TW13 5DP.

## A GUIDE TO THE HABITATS OF FRITILLARIES OF EUROPE AND NORTH AFRICA

by Andrew Wakeham-Dawson (9379)

Groveside, Heron's Ghyll, Uckfield, Sussex TN22 4GY.

The accompanying graphs show the distribution both montane and area-wise, of the representatives of the sub-family Argynninae (Fritillaries) found in Europe and North Africa, and are intended to act as an aid to the identification of some of the more difficult species. They were prepared to improve my own understanding of the fritillary family and I have submitted them to the *AES Bulletin* for two reasons: firstly, in the hope that they might be useful to others and, secondly, in the hope that other members of the AES might comment on them and their contents.

Many of the species I have not yet seen and would be interested in receiving information from those who have. For completion, the graphs really need to include larval foodplants and flight dates, but I did not want them to become too complicated. Some of the information is from my own notes, but the main source from which the data is taken is the fourth edition of Higgins, L.G. & Riley, N.D. (1980) *A Field Guide to Butterflies of Britain and Europe*, Collins, London.

It may be worth noting, by way of explanation, that the habitats marked are those in which a particular species can be found right across its altitude range.

The SE (Southern Europe) area of the distribution map can be taken to include Italy, Greece and regions around these countries.

(Editor's note: Mr Wakeham-Dawson kindly supplied the extensive tabular matter in his article as camera-ready (Linotron output) copy. Being an account of mainly Palaearctic rather than British species a few of the names used are those of Higgins, rather than those of Emmet & Heath and the scientific names are not in the normally-used italic script. The following synonymy therefore occurs: *Mesoacidalia aglaja* = *Argynnis aglaja*; *Fabriciana adippe* = *Argynnis adippe*; *Fabriciana niobe* = *Argynnis niobe*; *Issoria lathonia* = *Argynnis lathonia*; *Clossiana euphrosyne* = *Boloria euophrosyne*; *Clossiana selene* = *Boloria selene*; *Clossiana dia* = *Boloria dia*; for *Eurodras desfontaini* read *Eurodryas desfontainii*; for *Proclossiana eunomia ossiana* read *Proclossiana eunomia ossianus*.)

# KEY

— = Altitude range in which a species has been recorded

➔ = Species recorded at this altitude and above

## HABITATS

A	alpine
AB	arctic bogs
ATL	above tree line
B	banks
Bg	bogs
BTL	below tree line
BZ	birch zone
C	clearings
D	damp places
F	flowery
Fr	forest
G	grassy
H	heaths
HL	hill
Ht	hot
L	lowland
M	meadows
Ma	matorral (mediterranean scrub)
Mr	moorlands
Mt	Mountains
P	pine forest
RP	rough places
S	slopes
Sa	subalpine
SP	spruce woods
T	tundra
TL	tree line
V	valleys
W	woodland (deciduous)
Wt	wet

## DISTRIBUTION

A	Algeria
B	Balkans
Bg	Bulgaria
Bc	Baltic Countries
C	Corsica
F	France
M	Morocco
MI	Mediterranean Islands
P	Portugal
Py	Pyrenees
S	Spain
Sa	Sardinia
SW	Sweden



E	Europe
CE	Central Europe
EE	Eastern Europe
NE	Northern Europe
SE	Southern Europe
NA	North Africa
*	Isolated Regions

## A Guide to the Habitats of Fritillaries of Europe &amp; North Africa (Family - Nymphalidae. Sub-family: Argynninae)

Genera and Species	HABITAT																								DISTRIBUTION
Pandoriana pandora (Cardinal)																									
Argynnis paphia (Silver-Washed)																									
A. paphia immaculata																									
A. paphia dives																									
Argyronome laodice (Pallas's)																									
Mesoacidalia aglaja (Dark Green)																									
M. aglaja lyauteyi																									
Fabriciana adippe (High Brown)																									
F. adippe chlorodippe																									
F. niobe (Niobe)																									
F. niobe auresiana																									
F. elisa (Corsican)																									
Issoria lathonia (Queen of Spain)																									
	0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400

Altitude (Metres)

Altitude (Metres)

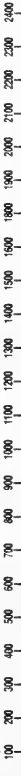
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A Guide to the Habitats of Frillaries of Europe & North Africa (Family - Nymphalidae. Sub-family: Argynninae)

Genera and Species	HABITAT																DISTRIBUTION
Clossiana euphrosyne (Pear-bordered)																	E
Clossiana titania (Titania's)																W FrC	NE, CE*
Clossiana titania cypris																W FrC	CE
Clossiana selene (Small Pearl-Bordered)																W FrC	E
Clossiana Chariclea (Arctic)																T	NE
Clossiana freija (Freija's)																Mr MH T	NE
Clossiana dia (Violet or Weaver's)																W H	CE
Clossiana polaris (Polar)																T	NE
Clossiana thore (Thor's)																SP	NE
C. thore borealis																BZ	NE
Clossiana frigga (Frigga's)																Bg Mt Mr	NE
Clossiana improba (Dusky-winged)																Mt S	NE
Melitaea cinxia (Glanville)																F M	E, NA

Altitude (Metres)



## A Guide to the Habitats of Fritillaries of Europe &amp; North Africa (Family - Nymphalidae. Sub-family: Argynniinae)

Genera and Species	HABITAT																			DISTRIBUTION
	0	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	
<i>Melitaea cinxia atlantis</i>																				M
<i>Melitaea arduinna</i> (Freyer's)											FM	Mt								EE
<i>Melitaea phoebe</i> (Knapweed)											FM									E, NA
<i>Melitaea phoebe occitanica</i>											FM		S							S, P
<i>Melitaea phoebe punica</i>																	F	S		NA
<i>Melitaea aetherie</i> (Aetherie)											W	FM								S, NA
<i>Melitaea aetherie algerica</i>																		FM	Mt	NA
<i>Melitaea didyma</i> (Spotted)											FM									CE Form
<i>Melitaea didyma meridionalis</i>																				Alpine Form
<i>Melitaea didyma occidentalis</i> (European)																				SE, NA
<i>Melitaea didyma occidentalis</i> (N African)																				SE, NA
<i>Melitaea deserticola</i> (Desert)												Ht	V							NA
<i>Melitaea trivia</i> (Lesser Spotted)																				EE

Altitude (Metres)

2400

2200

2000

1800

1600

1400

1200

1000

800

600

400

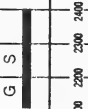
200

0

A Guide to the Habitats of Fritillaries of Europe & North Africa (Family - Nymphalidae. Sub-family: Argynninae)

Genera and Species	HABITAT																DISTRIBUTION
Melitaea trivia ignasiti																	CE, EE
Melitaea diamina (False Heath)																	CE
Melicta athalia (Heath)																	CE
Melicta athalia boris																ATL Mt	CE
Melicta athalia norvegica																	NE
M. athalia celadussa																	E
M. athalia biedermanni																	F
Melicta deione (Provençal)																	S, P
Melicta varia (Grison's)																	S, F
Melicta parthenoides (Meadow)																	F, S, NA
Melicta aurelia (Nickerl's)																	
Melicta britomartis (Assmann's)																	
Melicta asteria (Little)																	

Altitude (Metres)





## THOSE LAZY MOTH COLLECTORS

by John Tennent (7756)

*1 Middlewood Close, Fylingthorpe, Whitby, North Yorkshire YO22 4UD.*

I recently picked up a book written 30 years ago by a well-known American entomologist, Alvah Peterson. The first sentence in a chapter about trapping insects (Peterson, A., 1953. *Entomological Techniques: How to work with insects*. 10th ed. page 31) read "Luring and trapping is an easy and a lazy man's way to catch insects". I suppose in the sense that once the MV trap is on and the generator running sweetly one could sit back and read a book, or even go back to bed, then it is fairly "easy", but there is rather more to it than that.

The butterfly collector walks around in pleasant scenery in the sunshine and if it should rain (or even look as if it might), he retires to the nearest taverna to while away his time over a cold beer until the sun returns and he can safely venture forth again. On the other hand, the moth collector skulks around in the dead of night, lugging his heavy equipment to the chosen site and hoping for plenty of cloud to obscure the moon and, if he is really lucky, perhaps even the odd shower. If he is dedicated he stays awake most, if not all, of the night and eventually gets home, tired and grumpy, when most sensible people are thinking of breakfast.

After ten years of butterfly collecting I recently spent two years collecting moths intensively in Hong Kong and Borneo. Being only semi-tropical in Hong Kong, it was possible to use a Robinson pattern trap most nights and not be swamped by moths, but even so it had its moments. On one March night above Tai Po Kau nature reserve in the New Territories, a violent storm succeeded in taking the cover off the generator with the fairly natural result that it stopped and the light went out. There was nothing for it but to get out of the car and walk the 20 yards or so to have a look. Within seconds I was absolutely drenched and, having picked up the gear and stowed it in the car, set off for home. The rain was sheeting down and very cold so, for the sake of health and comfort, I stripped down to my underpants and threw my sodden clothing in the back of the car. There is a barrier at the bottom of the hill at the entrance/exit to the reserve; it was invariably left open all night but on this occasion it was padlocked so I had no choice but to go in search of the warden. What he thought on being wakened at three o'clock in the morning by an almost naked Englishman who had just come down from the wilderness, I shall never know, since with typical Chinese inscrutability he just smiled weakly and let me out.

My very first night of trapping in Borneo also included a tropical storm. In a hired Toyota Landcruiser in which I intended to spend the

night, I found a likely looking high point on a logging track in primary forest off the Labi Road in Brunei. Excited at the prospect of lots of new moths, I set up the light and waited expectantly. I was not disappointed. One of the first moths to arrive just after dusk was the beautiful Spingid *Callambulyx rubricosa*, surely one of the most beautiful hawkmoths in the world, especially when fresh. *Ambulyx* and *Eupanacra* then started to arrive and so did the wind, which crept up almost unnoticed. Soon it could be heard above the sound of the generator and suddenly the Landcruiser was not the safe haven it had seemed, with trees threshing and creaking and branches cracking. Then the rain came and within seconds the firm red earth had changed into a quagmire of thick mud which stuck to everything; walking was like wearing snowshoes with several pounds of mud clinging to each boot. A rather nice *Smerinthulus* chose this moment to hit the sheet lying under the trap; the corner of the sheet escaped from under the stone which was weighting it down and flipped over the moth. In my eagerness to take it undamaged I slipped and fell flat in the mud, kicking over the trap and collecting several more pounds of mud in the process. Enough is enough. I packed up, marvelling that moths were still flying in these conditions, and drove home. It took almost an hour next morning to hose down the clothing and equipment.

The following night I learned another lesson the hard way, since I had seen no reason so far not to use the Robinson trap. It doesn't work in the tropics of course but it was not until the light had been on well over an hour that I realised the trap wasn't going to be able to cope with the volume of moths, even with a liberal dose of tetrachloroethane inside. The contents of the trap were totally useless from a collecting point of view. From then on I used a sheet suspended on the side of the vehicle, or built a frame.

Some of my forays into the Brunei jungle were by helicopter where I was dropped in some remote areas and picked up later (Fig. 8). I have never liked flying and regard helicopters as infernal machines at the best of times; it was both exhilarating and terrifying with no rear doors fitted, sitting in the back with my feet on the skid and nothing to see but mile after mile of lumpy green carpet. The forest looked from a height a little like broccoli; I suspect it would not have felt like it if I'd fallen out. It helps not to have much in the way of imagination. One of these visits to the "interior" was for ten days over Christmas 1990 (Plate F, Fig. 4) and there was some discussion with the helicopter pilot as to whether it was wise to visit the planned area alone as a honey bear and a 20ft python (whether exaggerated or not I never found out) had been seen in the area a couple of weeks before. Objections were withdrawn when I pointed out that a bright light and a generator running all night were likely to make



Fig. 7. Sarawak, Gunung Serapi: Visitors. Malaysian Army soldiers (some of them just out of bed) having come to see what the bright light is all about.



Fig. 8. Flying in to a trapping site on a ridge on the Brunei/Sarawak border. The white mark is a trig point.

all the local wildlife, bears and pythons included, head for Sulawesi; nevertheless I spent ten days looking over my shoulder and always had my torch and machette strapped to my belt at night. On Boxing Day I did hear a grunting and snorting by the river below my "camp" and, although I assumed it was probably a pig, made lots of noise by banging my spoon on the bottom of a saucepan to frighten it away, just in case it wasn't.

Other animals were not so shy. On another occasion, also in the Brunei jungle, my "camp" was about 150 metres from the helicopter landing site, where the light was running. I sat quietly eating my supper one evening when I saw a dark shape moving stealthily in the thick undergrowth. Just as stealthily (I hoped), I groped for my camera, believing there would be just one good photo opportunity before the flash frightened whatever it was away. Not so! The flash caught a surprised looking civet cat (Plate G, Fig. 5) which turned and walked sedately back into the forest. A little while later I visited the sheet and on returning found that a box of food I had stupidly left on the ground had been ransacked and that my only tube of tomato purée and a box of Oxo cubes were missing. The culprit was not far away and the cat became a real nuisance over the next few nights, eventually completely ignoring the camera flash and the large fire I built in an effort to keep him away. Even my shouting and throwing things at him had a negligible effect; the smell of food must have been too good to resist and I would wake up in the middle of the night to find him sniffing around underneath my hammock. If I had had to stay there very much longer civet stew would definitely have been on the menu.

Some unwelcome visitors are smaller. At four o'clock one morning in a Sarawak forest (one of the few bits left) I was crouched at the back of the sheet gloating over a new moth, when a very large black scorpion scuttled into view about a foot away from my boot and headed straight for it. At the moment my mind said "Where's my camera?", my right foot executed a purely instinctive self-preservation manoeuvre, instantly negating the necessity for a camera. The Malaysian "tarantula" spider (Fig. 10) (I've always hated spiders) was somewhat luckier. I spotted him on the lower corner of the sheet, again in the wee small hours, munching away at a medium sized Noctuid clutched beneath him. He allowed me to photograph him and then, probably tired of all the attention, walked slowly off into the grass. It was some time before I was brave enough to return to my usual perch on top of a fuel can some distance from the light. You become inured to moths, mantids and other miscellaneous insects creeping around inside your shirt and flying into your hair and up

Fig. 2 opposite. An average night trapping in tropical Brunei. The large moths with the thin white stripe are *Lyssa zampa* (Uraniidae), of which more than 100 sometimes came to the light in one night. Also to be clearly seen are the hawkmoths *Theretra nessus* (see Plate G, Fig. 6 for close-up), *Cechenena helops*, *Acosmeryx shervillii* and *Psilogramma menephron*.





Fig. 1. Brunei: an average night trapping in the tropics.



Fig. 2. Brunei ditto. For details of moths see text opposite.



Fig. 3. Sarawak: logging.

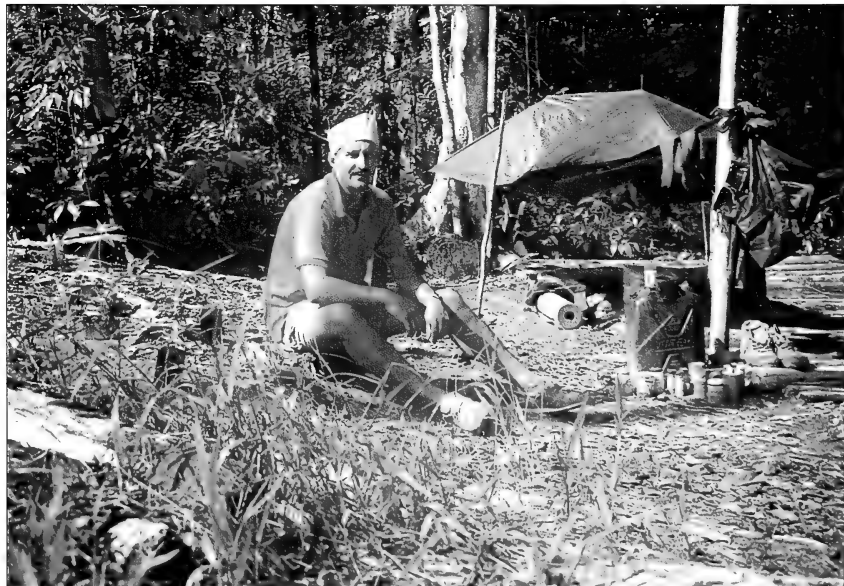


Fig. 4. Brunei: alone on Christmas day 1990. Hat is specially designed from quality loo paper.



Fig. 5. Brunei: civet cat stew — nearly!

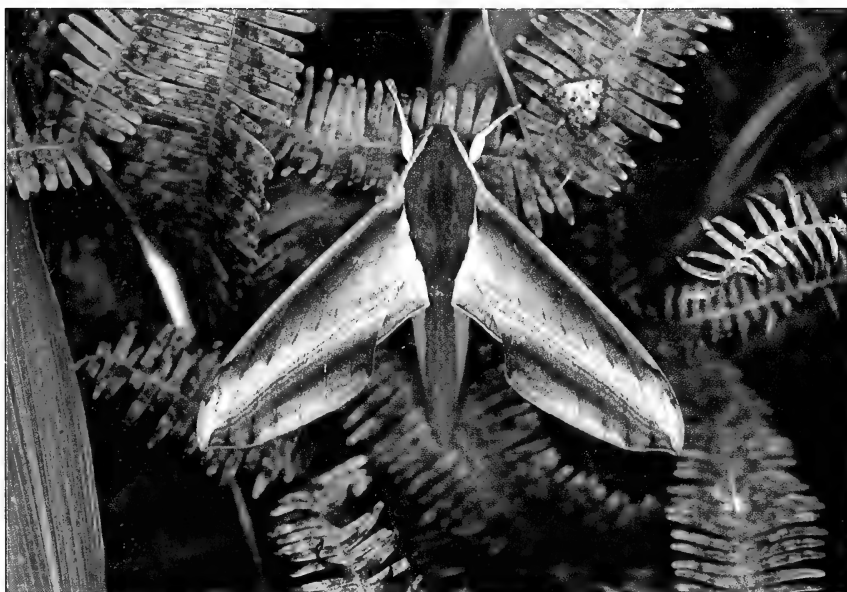


Fig. 6. Sarawak: the hawkmoth *Theretra nessus*.



Fig. 7. Gynandromorph Gatekeeper, *Maniola tithonus*.



Fig. 8. The tiny male *Theoprobus elegans* mounting his large bride.



Fig. 9. Brunei: the hawkmoth *Daphnis hypothous*.



Fig. 10. Brunei: a Malaysian Tarantula spider.

your nose, but the thought of a spider the size of a tea plate crawling slowly up the back of my shirt towards my neck makes my flesh crawl — even now.

Then there are the large visitors to the sheet. The largest thing I (almost) caught was a helicopter. Trapping on Ping Chau Island, uninhabited apart from a token policeman, and only a few kilometres from the Chinese mainland, a helicopter of the Hong Kong Auxilliary Air Force came to investigate the light one night (Fig. 7). Unfortunately the pilot carried out his investigation by hovering just above the trap and, once the light had disappeared, went away again. I vented my anger on the duty man at their headquarters using the police radio telephone and returned to review the damage. The trap, bits of egg box, leads, plastic shield etc were recovered from all points of the compass; remarkably, the MV lamp still worked.

The mass of insects attracted to the sheet in the tropics has to be seen to be believed (see Plate E, Figs. 1 and 2). Sometimes the actual light was almost obscured by the mass of wings and on one night there were more than 400 individuals of the Oleander hawkmoth, *Daphnis hypothous* (Fig. 9) alone. Not all visitors are welcome. Cicadas, although harmless, were a nuisance on nights when they came in large numbers, sometimes appearing in thousands and thumping into the sheet where they would go berserk for a few minutes before climbing slowly and laboriously up towards the lamp. A great mass of them would then fall off together and begin the process all over again. Beetles appeared in smaller numbers, although the enormous *Chalcosoma* beetles had to be put in the killing jar for if left to wander they would shred any moths sitting under the lamp. Other visitors were not so harmless. Bees were the worst; often amongst the first insects to the light after dusk, they made picking moths off the sheet very hazardous and when they were really bad, had to be sprayed with insecticide.

Then there is the competition. Bats are far better moth collectors than people and I have often seen a large bat take a hawkmoth as it came in high to the light. They sometimes come in very close to take moths and on clear nights in Hong Kong when bats were plentiful and moths were not, they managed to take a high percentage of incoming moths. I only once got my own back when, just before dawn one morning, I was standing guard over a bush of *Duranta repens* and struck at a nectaring *Macroglossum* at the same time as did a bat. The *Macroglossum* buzzed off furiously and I was left to untangle the bat from the net.

Add to all this, the sleepless nights, being bitten by a million things you don't even see, generators that break down every half hour during the night and having to endure the sympathy of non-entomological friends who know you're quite mad, then trapping is certainly *not* easy!

## REARING MANTIDS

by Mathew Gale (9422)

*Medion Lodge, Pipers Yard, Acre End Street, Eynsham, Oxon OX8 1PE.*

Breeding mantids tends, in most people's minds, to conjure up a picture of a nuptial feast where the male is on the menu. More recently, literature describing mantid breeding behaviour has tried to dispel this notion as being, probably, rare in the wild.

In his book, *Grasshoppers and Mantids of the World*, Ken Preston-Mafham suggests that female mantids use pheromones to attract males when they are ready to mate and that courtship behaviour is probably unnecessary because females have already signalled their receptivity and therefore may not need to be placated.

Since our conceptions of mantid breeding behaviour seem to be most common, it is necessary to analyse what we are doing wrong — assuming that losing males during mating is still a problem experienced by many mantid keepers. It is of course important to remember that what follows is by no means the only or best way to pair mantids and reduce the risk of losing males during mating, but rather, methods which I have (so far!) found success with.

Most mantid breeders suggest waiting about two weeks after the moult to imago before attempting a pairing, as both sexes appear to need this time to mature sexually. Sexually immature adults tend to act differently from those which are ready to mate when they are introduced to the opposite sex. Basically, males are often indifferent or else terrified of females, and females are generally much more likely to attack males if they are sexually immature. Unfortunately, mantids don't always mature sexually within the fourteen days after their final moult and for this reason, I disagree with simply tossing them into a cage together and letting them get on with it! Allowing your mantids to choose for themselves the best time to mate seems best and this can be achieved quite easily if one has the perseverance to attempt pairing night after night until successful. Luckily, female mantids need only be mated once, so once pairing has been achieved, one can simply sit back and wait for the next generation to appear.

As with most insects, it is probably best to try to mimic the sort of circumstances that your mantids might experience in the wild, as far as is possible. Assuming that relatively stationary females signal their willingness to mate by diffusing sexual pheromones in order to attract males that might be some considerable distance away and that males only intentionally approach females that are ready to mate, one is left with the awkward problem of "how can you mimic this, short of allowing

mantids the freedom of the house!" I keep my adult females perched on houseplants or twigs around my room and have found that they rarely wander far if well fed. The advantage of this is that one does not need to disturb the females in order to pair them. Also, because they are not confined within a cage, males have the advantage of being able to completely escape unreceptive females, or after mating has finished. Because males tend to wander about and get lost, I keep all adult males confined except when needed for breeding.

When the requisite two weeks have elapsed, I allow one of the males to settle on my hand and then slowly move my hand so that the male is facing the female from behind. As previously mentioned, if either sex is not yet ready to mate, the male will appear disinterested or perhaps interested enough to watch the female before leaping off your hand, away from what he obviously sees as danger. Alternatively, if both sexes are sexually mature, the male's antennae will wave rapidly and if he is close enough, he might draw his raptorial legs into the praying position, tense himself and then leap/fly onto the female's back at a surprising speed.

However, different species seem to prefer mating under different conditions. The tiny male of *Theoprobatus elegans* (a flower mimicking mantid from Malaysia) which I kept recently, seemed undaunted by the 100 watt light bulb I had shining on him and his prospective bride (who was easily four times larger than he was). The pair is shown on Plate H, fig. 8. On the other hand, the male of a species of *Sphodromantis* I had, refused to mate with any of the three females until I had turned the lights off! If males appear unwilling to mate, but seem otherwise interested, with antennae waving rapidly, it is easy enough to improvise a perch for them (I have used a kitchen roll in the past) and place it next to the female's perch so that the male can approach her from behind and then simply leave them alone in the dark. Of course, you may want to be there to intervene if things go wrong, but you have reduced the risks by ensuring that both parties are sexually mature and, hopefully, the male will be able to escape if the female turns cannibal, for some reason.

It has been suggested that conditions such as humidity, temperature, time of day, etc have an effect on mantids' willingness to mate. Certainly, it needs to be warm, but room temperature of 65 to 70°F seems adequate in my experience. I have not found that humidity plays a major role and I have kept mantids that will happily mate in the late afternoon, while others seem to prefer night-time. Finally, I would suggest presenting the female with a large meal just before introducing the male. If she is otherwise occupied, she is less likely to take much notice of the male stalking her. It is also, in my opinion, unwise to introduce more than one male at a time to a female mantid. Males have



been known to actively compete for a female, actually engaging in battle and this could disturb the female, putting both/all the males in danger from attack by the female they are competing for. Breeding mantids requires a certain amount of flexibility and can be frustrating at times and of course no method used is infallible!

I would be very interested in hearing from other mantid enthusiasts about the species they keep and their experiences with breeding and rearing these fascinating insects.

## BOOK REVIEW

*Keeping and Breeding Butterflies and Other Exotica* by John L. Stone. 1992. Blandford Press (Cassell). Pp.192 plus 16 of coloured plates with line drawings and black and white plates in the text. Hardback. ISBN 0-7137-2293-2. Price £9.95.

The author, a member of our Society, with another member, John Midwinter, in 1971 set up at Bourton-on-the-Water the first "Butterfly House" in 'Britain, probably the first in the world. From this have come the large numbers now existing. Any new book on butterflies must be judged upon its originality and whether it adds to our knowledge of our most popular insects. The first hundred pages (Parts 1 and 2) detail what has already been published on the life-histories of our native and immigrant butterflies, unfortunately repeating some of past errors, indicating that some, at least, is not from personal observation. The Heath fritillary larvae will not eat wood sage (called by old authors wood germander), the error arising from the fact that some colonies use *Veronica chamaedrys* (Germander speedwell) as their main foodplant. White admiral larvae do not spin a tube to shelter in when not feeding — the small larvae rest on the mid-rib at the tip of the leaf which is left after eating the adjacent leaf material. Many known alternative foodplants for use in captivity are not mentioned, information useful to the intending breeder. This part of the book adds nothing to our own publication on breeding our butterflies (*Amateur Entomologist* No. 18).

Part 3 considers breeding methods and equipment for British species and gives details of how to construct a large flight cage, which is useful. Use of greenhouses and notes on breeding exotic Papilios and Heliconids complete this section. Part 4 briefly considers the breeding of mantids, scorpions, stick- and leaf-insects, locusts, large spiders and leaf-cutting ants. These sections will act as an introduction for anyone considering setting up his own exotic "breeding display" involving the use of heated and large flight cages. The book is well produced and the coloured plates are excellent.

## BOOK REVIEW

*Arachnida: Proceedings of a one-day symposium on spiders and their allies held at the Zoological Society of London, 21st November 1987.* Edited by J.E. Cooper et al. A4, pp.207, illustrated. Chiron Publications Ltd., Keighley Business Centre, South Street, Keighley, W. Yorks BD21 1AG. 1992. ISBN 871043 05 0. Price £12.50.

One could not do justice to this book without making mention of the symposium that gave birth to it. Though the symposium set itself a broad task, success must lie in the fact that it brought so many experts of their individual fields, amateur and professional, under one roof for a day. This book is an aggregation of the papers that were delivered and truly reflects those proceedings.

Though there are some notable gaps in items on certain arachnid orders, i.e. Harvestmen and Pseudoscorpions (though they do get a small mention in the introducing chapter), the book tends to lean towards the study, keeping, care and law regarding the more exotic species of spider and scorpion. However, there are interesting papers on Ticks and Mites — quite often neglected subjects in their own right — and an article on keeping, or the difficulties in keeping, Solifugids, “camel-spiders”. There is much mention for the need of arachnid conservation and this message is stressed on numerous occasions.

This book, long in gestation though it has been, succeeds in the opinion of this reviewer not least as it shows what is being achieved by the successful marriage of amateur and professional workers. Arachnology, historically a neglected subject, survives on the work of a remarkably small community worldwide. *Arachnida* oozes with the spirit and enthusiasm that surrounds the subject and epitomises what arachnology is all about. It shows what can be achieved when “like-minded fellows” single-mindedly gather and share their findings.

Anyone who has an interest in keeping or studying arachnids — whatever the family — should find something to imbibe in this volume. There are many useful references given at the end of each chapter, to do with its contents, and some even have a “questions and answers” section of what was discussed at the time of the symposium. No one day symposium could address the whole and varied world of arachnids; here, however, we have an attempt and a written account of what went on. This reviewer feels it would be far too critical to stress any shortcomings inherent in such proceedings, considering the diverse subject matter, and is of the opinion that a great deal was achieved at this symposium, much of which would interest even the most ardent entomologist. The book is neither too simple nor too technical to understand. I can thoroughly recommend this book to you.

Though the subject continues to make advances, this book is remarkably up to date and should act as the stimulus to get the next symposium both expanded in time and in subject matter. My one main criticism is that it has been too long between conception and confinement and that, after the next symposium, perhaps greater strides should be taken to get the proceedings published earlier. However, this is a minor matter and the asking price of £12.50 represents good value for such a volume, in these days of inflation, to be too critical. It will remain both an interesting read and a good point of reference for some time to come.

James Wright

## A VERY LATE HUMMINGBIRD HAWKMOTH

by N. Butt (9109)

It may be of interest that on 3rd December last year I found a Hummingbird hawkmoth (*Macroglossum stellatarum*) flying around a very warm workshop in the Brewery at Blandford, Dorset. I placed it in a cardboard box and put it in a cool place where it soon settled down as if to hibernate. I checked it once or twice a week, but after a very hard frost it was found to be dead on 22nd January 1992. During the past three autumns, single specimens of this moth have been found in the cellar of the Brewery and I wonder if they were in fact looking for a suitable site. Perhaps they mistook the cellar for a cave, or were they after the beer?

## A GYNANDROUS GATEKEEPER (*PYRONIA TITHONUS*)

by Peter Salmon (9311)

24 Shottsford Road, Oakdale, Poole, Dorset BH5 3DU.

An article in the October *Bulletin* (50: 211) by Ekkehard Friedrich about gynandromorphs prompted me to submit a photograph of a Gatekeeper which I have held for many years. It was taken near Sidmouth in Devon in 1982 (Plate H, Fig. 7). The left side is male, the right side female.

I would be most interested to know if any readers could throw some light on why gynandromorphs occur. Could it be due to severe climatic conditions during the pupal stage as is the case with other types of aberration?

E.B. Ford in his book *Butterflies* suggests that gynandromorphs occur due to an abnormality in cell division (the loss of the X-chromosome) soon after egg fertilisation. Is it still recognised as being an inherited condition or can we now attribute gynandromorphism to other factors?

Are the genitalia halved or do they exhibit the characteristics of either male or female? Members comments would be welcome.

## DECEMBER BUTTERFLIES

by M.J. Dawson (9130)

A week spent in Madeira from 27th November to 5th December 1991 was not primarily an entomological expedition but a small folding sprint-net was taken, albeit without a handle.

On 1st December on a hill just to the east of Machico, in the east of the island, a number of blues were seen and captured. Five were long-tailed Blues (*Lampides boeticus*). One extremely fine Large blue, with long, dark wing streaks, was seen from a distance of two feet, when settled on the ground. The habitat was very similar to the area near Buckfastleigh where the Large blue is being introduced in this country.

Five examples of the Monarch (*Danaus plexippus*) were seen. They appeared very large, much more so than any pinned specimens which I have seen. Small whites (*Pieris* spp) were common and differed not at all from our specimens. Many examples of the Speckled wood (*Pararge aegeria*) were seen and captured on the 2nd December. These were of the southern race with extremely large pale areas.

Two Clouded yellows (*Colias croceus*) were captured. These had exceptionally dark hind wings.

One large Nymphalid flew past and went high over the trees and could not be identified.

Dragonflies were everywhere and one pair were seen copulating.

Not a large variety of "flies" were seen, but pleasant in the month of December.

## EARTHWATCH'S RESEARCH AND EXPLORATION PROGRAMME 1992-93

Earthwatch is an international organisation that sponsors scientific research by finding volunteers willing to help scientists and scholars working on field research projects. It acts as a bridge between science and the community by taking problems to a public willing to invest a little of their time and money in helping to solve some of the more pressing issues of our time.

They run numerous research and exploration expeditions to all parts of the world. These are of a few weeks duration and while subsidised, participants contribute to the running costs, which could be less than that of a conventional holiday. Of interest to Entomologists: Studying Katydid in Peru; Studying insects in the rainforest canopy of Queensland, Australia; Studying Arctiid moths in Ecuador. Full details from Earthwatch, Belsyre Court, 57 Woodstock Road, Oxford OX2 6HU.

## SOME OBSERVATIONS ON BUMBLEBEES AND CUCKOO BEES FROM ARGYLL AND NORTH-EAST SCOTLAND

by M. Hancox

72 Bisley Old Road, Stroud, Gloucestershire GL5 1NB.

The species composition and pollination ecology of bumblebees and Cuckoo bees was investigated in north-east Scotland during 1979 - 1980. The bee population was sampled at half-month intervals throughout the warmer month bee season of April - October, each sample consisting of 100 or so bees identified in the field and observed foraging on as representative a range of the available foodplant flowers as possible: Table 1 (Hancox, 1989). Sampling sites were at Banchory in both years (Ordnance Survey map grid reference NO 690 955), in gardens, farmland, open birch - conifer woodland and low lying moorland; at Seaton, Aberdeen in 1979 (NJ 940 090), in gardens, commons and parks.

Only five bee species were common in this north-eastern sample. No specimens of the big red-tailed *Bombus ruderarius*, *B. lapidarius* or its Cuckoo bee parasite *Psithyrus rupestris* were seen, but all three species occurred formerly at the limit of their range in the north-east and are present in an old collection from Banffshire in the Museum of the Zoology Department, Aberdeen University, and both these *Bombus* species were also recorded by Laidlaw (1930-31). Both are much commoner south of the Border, for example comprising some 11% of a sample from Gloucestershire in 1990 (n = 1200). Similarly, *B. terrestris* approaches its north-eastern limit in Aberdeenshire, being replaced there by *B. lucorum*, which in turn is replaced by its subspecies *magnus* in even more extreme habitats. Thus, *magnus* comprises only c. 15% of this *lucorum* sample overall, but some 70% on moorland near Banchory and at Drimnin in Argyll. The two species *distinguendus* and *muscorum* are also characteristic of more extreme habitats, being common in Orkney.

Moorland supports a different bee community to sheltered, florally richer valley floor habitats such as along Deeside. The percentage composition of a 1980 sample of 718 bees from near Banchory (below the level of 534m. Kerlock hill. NO 697 879) comprised 90 *lucorum*, six *jonellus*, 3 *monticola*, 1 *P. bohemicus*, and less than 1% *pascorum* and *pratorum*. A May 1980 sample of 21 bees from inland Deeside, near Ballater at Loch Muick (NO 290 830) consisted of 71% *lucorum* and 29% *monticola*; whereas higher still on Locknagar in June 1979 (1155m., NO 250 850), *monticola* outnumbered *lucorum* by 83: 17% (n = 53). However, *monticola* populations vary greatly from year to year, and apparently undergo a vertical migration upwards following the onset of flowering of their main bilberry foodplant (Hewson, 1986; N. Bayfield and A. Watson, *pers. comm.*). A sample of bees from low coastal wet

moorland at Drimnin in Argyll (NM 560 540) in 1977-78 comprised 68 *lucorum*, 14 *jonellus*, 12 *hortorum*, and less than one percent of *P. bohemicus* (n = 106).

The distribution and seasonal abundance of Cuckoo bees closely followed that of their host species, some 83% of the north-east sample being *P. bohemicus* (host *B. lucorum*); with far fewer *P. sylvestris* (host *B. pratorum* and possibly *B. jonellus*), or *P. barbetellus* (host *B. hortorum*), but a new record for the north-east (Alford, 1975). The abundance, distribution and life history cycle of bumblebee species varied greatly according to their feeding ecology and local, altitudinal and seasonal conditions. Thus, the life history time span showed some variation between species, some such as the often urban *pratorum* and *hortorum*, being virtually over by late August; *lucorum* also beginning to tail off by then too, whereas *pascuorum* peaked in August and were present from April until October.

The timing and ontogenetic development of bumblebee colonies is clearly related to the seasonality of flowering of their principal foodplants. A simplistic succession hence occurs in specialised ecologically poor habitats such as exposed wet moorland at Drimnin, where bees forage mainly on willow (*Salix* sp.) during April, transferring to holly (*Ilex aquifolium*) and rowan (*Sorbus acuparia*) in May, then to yellow flag (*Iris pseudacorus*) during June - July, and culminating with heather (*Calluna vulgaris*) during August-October. Catholic feeding habits enabled *lucorum* there to fill-in during lean periods with other flowers such as lousewort (*Pedicularis sylvatica*), heaths (*Erica cinerea* and *tetralix*), thyme (*Thymus* sp.), clovers (*Trifolium*), bramble (*Rubus fruticosus*) and hardhead (*Centaurea nigra*). Carder bees *pascuorum*, with a more restricted range of foodplants and apparently avoiding the dominant heather, are correspondingly less successful in such areas, although seemingly well able to compete in richer habitats where low meadow and hedgerow plants such as bluebell (*Endymion nonscriptus*), bramble, raspberry (*Rubus idaeus*), scabious (*Knautia arvensis*) and vetches (*Vicia* sp.) are abundant.

Species which are apparently restricted to marginal habitats or to urban areas with rich garden plant sources in the north-east perhaps include *hortorum*, *pratorum* and *terrestris*; *Rhododendron* sp., (*Digitalis purpurea*), and various cultivated brooms (*Cytisus* spp.), labiates (*Salvia* etc.), *Potentilla* and snowberry (*Symphoricarpos rivularis*). The encroachment of moorland higher ground, coupled with a diminution of some plant species towards the north-east such as scabious, white dead nettle (*Lamium album*) and wood sage (*Teucrium scorodonia*) (D. Welch, pers. comm.), may also be responsible for the impoverishment of the bee fauna, although crop spraying rather than climate may be the

adverse factor as regards *Lamium*. White dead nettle is an important foodplant both early, and late in the season after verge-side cutting, for many species including the now apparently extinct *lapidarium* and *runderarius*, but especially for the long-tongued *hortorum*.

A complex inter-relationship hence exists between feeding ecology, distribution and abundance of bumblebees, as well as their dependent Cuckoo bee parasites, with the changing seasons. Much work remains to be done to clarify these problems, particularly in Scotland where the published distribution maps reflect collectors' rather than true species distribution (Alford, 1975); and particularly as regards scarce local species such as *distinguendus*, *jonellus*, *monticola*, *muscorum* and *soroensis*. Island bee fauna would be especially worth-while study projects.

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Table 1. Species composition of Bumblebees (*Bombus* spp.) and Cuckoo bees (*Psithyrus* spp.) as percentages. + = < than 1%, total no. of bees was 6866.

<i>Bombus distinguendus</i>	+	<i>Bombus pratorum</i>	14
<i>Bombus hortorum</i>	6	<i>Bombus soroensis</i>	+
<i>Bombus jonellus</i>	1	<i>Bombus terrestris</i>	1
<i>Bombus lucorum</i>	52		
<i>Bombus monticola</i>	1	<i>Psithyrus barbutellus</i>	+
<i>Bombus muscorum</i>	+	<i>Psithyrus bohemicus</i>	14
<i>Bombus terrestris</i>	1	<i>Psithyrus sylvestris</i>	+

BOOK REVIEW

*Weevils* by M.G. Morris, A5, pp.76, illustrated. Naturalists' Handbooks No. 16. Richmond Publishing Company 1991. Price Hardback £13.00, paperback £7.95.

Dr Morris has had the unenviable task of encompassing the largest family in the animal kingdom within the relatively slim confines of the now familiar *Naturalists' Handbook* format. Even the fact that Britain has "only" 570 species scarcely makes the task easier, but the author is

clearly the master of his subject and has successfully tailored the mass of information available into a manageable compass.

The Introduction seeks to familiarise the reader with the group, through readily-observed examples characteristic of various host-plants: gorse, nettle, figwort and so on. There are also brief discourses on wider topics such as ships' weevils and weevils worldwide.

A more detailed discussion on Biology then follows, occupying the remainder of the first half of the book. This covers the full range of subjects including feeding, reproduction, phenology and locomotion. There are some particularly interesting glimpses into some lesser-known aspects of weevil life such as the role of sound-production and the parasitic feeding habits of certain species.

The remainder of the book is concerned with identification, and a two-pronged strategy is adopted to deal with the large number of species involved. The main key is restricted to the separation of families and sub-families, rather than the selective key to species found, for example, in the companion volume on *Common Ground Beetles* (Naturalists' Handbook No. 8).

This key is then supplemented by a further eight which focus in on particular habitats or foodplants — dock, hawthorn, stored food products for example — which should enable a name to be given to most weevils encountered within the relevant niche. This is perhaps more in keeping with the ethos of the series, which remains the encouragement of fieldwork and the filling in of gaps in our knowledge of such groups, rather than being an identification guide as such. The keys are appended by a useful review of all the available sources on weevil identification, highlighting the drawbacks of various works and introducing the reader to the most relevant European publications.

A final chapter covers collecting, curation, study techniques, and a list of further reading. The plates are well-executed although rather few species (24) are illustrated, compared to over 70 specimens figured in the Ladybird volume (Naturalists' Handbook No. 10). An opportunity was also lost in the text figures, where several illustrations are repeated rather than gaining the opportunity to display more examples of the group.

Nevertheless an excellent addition to the literature, and one that beginners should find particularly valuable — especially given the author's own assessment that "The most useful handbook to the British weevils which is written in English is still Fowler (1891)".

Publications such as the present work can only hasten the day when such long out of print volumes need no longer be relied on for the study of our native weevils.



**CUCKOO BUMBLEBEES (*PSITHYRUS* SPECIES) IN N.E. AND S.E. YORKSHIRE**

by Andrew Grayson (8621)

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The area in which I collect and study insects takes in part of the Watsonian Vice-counties of North-east and South-east Yorkshire. The Wolds of the south-east are the most northerly area of chalk in the British Isles and provide the northern limit for many insects in Britain.

In the north of the area are the North Yorkshire Moors which have many wooded valleys running along their southern edge, from Sutton Bank to Scarborough. In between is a mixture of lowland areas and hill ranges.

Since 1989 I have recorded bumblebees from 31 different sites within this area and have found six species of *Bombus* to be common everywhere except in extensive areas of open moorland. These six species are *Bombus lapidarius*, *B. hortorum*, *B. lucorum*, *B. terrestris*, *B. pascuorum* and *B. pratorum*. In my opinion a thorough search of any site within the area, excepting the open moorland, would turn up all six species and it is impossible to say which is the most common and which is the most scarce as they are generally all common everywhere although on a local basis one of these bees may be found in greater numbers than the others. There are six species of Cuckoo bumblebees in the British Isles and all six have been found in the area in the past. Each of these *Psithyrus* species is an inquiline of one of the six *Bombus* species mentioned above.

My own observations of the *Psithyrus* species in this area of Yorkshire during 1989 and 1990 are as follows.

*Psithyrus bohemicus*

There is no doubt that this is the most common *Psithyrus* in the area. I have found it in ten of the thirty-one sites and in each of the ten it was always present in good numbers. Spring queens can be found from late March to at least mid-May and males will be found clinging to thistle heads during June and July. This species is more frequent in the wooded valleys to the north than it is on the chalk Wolds and I found it to be widespread from York to the North Yorkshire Moors.

*Psithyrus cupestris*

This is the one species that I failed to find although its "host", *B. lapidarius* is very widespread and common throughout the district. According to the distribution maps in D.V. Alford's 1975 book *Bumblebees*, *cupestris* was found in a couple of inland sites in South-east Yorkshire and also in at least three coastal sites prior to 1960.

*Psithyrus vestalis*

I found this large bee in seven sites ranging from "wasteland" at Clifton in York to limestone localities near Kirbymoorside. Three of the sites were on the chalk of the Wolds and it may well be the most common *Psithyrus* species there. Early May is the peak period for the activity of the queens which were invariably damaged, particularly the wings. Perhaps its "host", *B. terrestris*, puts up a stiff fight before losing its nest to this invader. Males were found during July but never in mass groups such as those of *P. bohemicus* and *P. sylvestris*. The map in Alford's book gives the impression that this bee had disappeared from both North-east and South-east Yorkshire, but I have found it to be alive and well in both vice-counties.

*Psithyrus sylvestris*

Another under-recorded bee that turned out to be locally common in six sites from Wass Bank in the north to Howsham on the edge of the Wolds. The small queens were found from late April to mid-June and the males were common on thistle heads from late June to late July.

*Psithyrus campestris*

According to the distribution maps in Alford's book this bee would appear to be as common and widespread as *P. bohemicus* and much more common than any of the other four species. It could be more elusive than the other species but my own view is that it is more local and scarcer than *bohemicus*, *vestalis* or *sylvestris*. I found it in three wooded valleys between Thornton Dale and Helmsley and it appears to emerge later than the other species. Spring queens were not found earlier than 3rd June, by which time most of the other queens of the other species have disappeared.

*Psithyrus barbutellus*

Dr Michael Archer checked this species and described it as a very good find when I took two spring queens along Maiden Greve Balk at Malton on 5th May 1989. I did find another queen at the same locality on the same date in 1990, along with queens of *vestalis*, *bohemicus* and *sylvestris*. This species may be under-recorded as I also captured a queen at Strensall on 6th June 1990.

**THE ECOLOGY BUILDING SOCIETY**

The above Society provides a means of finance for the purchase of ecologically sound properties only. They lend on Small-scale workshops, Back-to-backs (which by their nature are energy saving); homes for running small businesses such as re-cycling; craft workshops or horticulture; derelict but sound houses which would otherwise be

abandoned; houses existing, or to be built, which incorporate energy efficient features; organic smallholdings; properties whose use will promote the life of small communities. Would-be investors or borrowers may obtain further details from The Ecology Building Society, Freepost, 18 Station Road, Cross Hills, Keighley, West Yorkshire BD20 5BR.

## L'INVENTAIRE ET LA CARTOGRAPHIE DES INVERTEBRÉS

The French entomological organisation "OPIE" has arranged a meeting on the above subject to be held in the University of Maine at Le Mans on 6th and 7th November 1992.

Le premier objectif de cette réunion est donc de permettre aux naturalistes de se retrouver les collaborations. Le second est de faire le bilan des résultats acquis dans le domaine de la cartographie et des inventaires. Le troisième est enfin de faciliter, avec l'appui des techniques modernes, la réalisation des inventaires futurs, comme contribution à la gestion des milieux naturels.

Further details obtainable from Laboratoire de Biosystèmeutique des Insectes, BP 535 — Faculté des Sciences, Université du Maine, Avenue O, Messiaen, 72017 Le Mans, France.

## A QUICK WALK-ABOUT ON THE ISLE OF SKYE 1991

by *Dominic Rey* (7929)

A friend of my mother had been living on Skye for a few years but like a lot of British these days, decided to emigrate to Australia. Before she left, my mother decided to drive up to see her. What did I do? Jumped in the back seat with my net and specimen boxes and endured sitting up during the 12 hour journey. I came in useful once or twice as a "back seat driver"!

The purpose of my trip was to compare notes, tread new ground and pick out a few odds and ends for the collection. During the two day visit the weather was decent even though up until then it had apparently been dismal and became so again on the day of departure.

Here is the list of butterflies and some moths found in the southern part of Skye on 23rd and 24th June, mainly near Broadford or Elgol.

**Small Heath (*Coenonympha pamphilus*)**

Fairly abundant, specimens having the underside of the hindwings very grey without the chestnut tinge as in some southern specimens. A particular variety, of which I found a pair, was a form with the hindwing underside totally uniform grey without the white patch.

**Large heath (*Coenonympha tullia*)**

Only a few males at Broadford on a damp hillside. They were flying over the grass, heather and bogs. Though easy to net, the butterflies can be

elusive and swift. When captured they were found to be of Scotch form, classed as ssp. *scotica* by most but classed as form *scotica* by myself. Though they were weakly spotted, only one was totally spotless.

Small pearl-bordered fritillary (*Boloria selene*)

One only at Elgol but not uncommon in a "closely knit" colony in a small ravine on the hillside at Broadford. I have read that this species is paler upon Skye, as in other parts of Scotland, but this was not so at this colony, as they were identical to the many I see in my own area in Gloucestershire.

Common blue (*Polyommatus icarus*)

Only one male at Elgol.

Green-veined white (*Pieris napi*)

Just the one seen, a brownish-grey coloured female.

The Northern eggar (*Lasiocampa quercus callunae*)

Males could constantly be seen, especially at Elgol, thrusting themselves through the air in the midday sun over the rocks and heather. They were identical to one I saw in Shropshire so I left them to it.

White ermine (*Spilosoma lubricipeda*)

Commonly at the window during heavy rain at night, all specimens more or less buffish coloured.

Also recorded were the following:- Broom moth (*Ceramica pisi*); Pretty pinion (*Perizoma blandiata*); Grey-scalloped bar (*Dyscia fagaria*); Smoky wave (*Scopula ternata*). The Small purple-barred (*Phytometra viridaria*) was not uncommon and the same as Cotswold moths. I took a nice male though with outstanding crimson bands.

## BOOK REVIEW

*Classic natural history prints: Butterflies, moths and other insects* by S. Peter Dance & E. Geoffrey Hancock. Folio, pp.128 of which 60 are the coloured plates. Studio Editions Ltd, 1991. £7.99.

This fine tome, which is one of a series (the others are on birds, flowers, mammals, shells and fish) is a selection of the coloured plates taken from entomological books published between 1592 and 1924, many of which are so scarce that they are likely to be available for study only in some specialist libraries and while we will undoubtedly have heard of Sybilla Merian's works on the butterflies of Surinam and our own Benjamin Wilkes and Eleazar Albin as well as the magnificent *Aurelian* by Moses Harris, the similar Dutch work by L'Admiral is almost unknown in this country.

This book therefore gives us an insight into the many very finely illustrated entomological books that have been published both here and abroad over the centuries and it will come as a surprise to most of us to

find that Mouffet's *Theatrum Insectorum* of 1634 was *not* the first illustrated entomological book to be published, that honour belonging to J. Hoefnagel's *Archetypha Studiaque* of 1592 with coloured illustrations far more accurate than the uncoloured ones in Mouffet.

The illustrations are on the right-hand page with the text on the left. This gives the derivation and size of the original and this is followed by some explanatory notes about the book, the author and/or the insects depicted. A chronological sequence is followed, starting with the above 1592 date and finishing in 1924 with the original drawings from which plate 27 of *A natural history of British butterflies* by F.W. Frohawk was made.

No modern method of reproduction can capture the charm of original hand-coloured plates on hand-made paper, or even that of early lithography, but the reproductions here are very good and far better than many which have been done before and they have the advantage of being in a large format size and while this gives a false impression of the actual physical appearance of smaller originals (no Large blue was ever *that* large, as it is on page 27!), the colour and appearance has been enhanced rather than losing quality. Direct comparison of some of the plates alongside the originals shows how well most have been reproduced, those from Dutch originals being particularly fine. Those on pages 17 (Albin), 55 (Harris) and 108 (Butler) are, however, very out of colour balance compared with the originals before me; perhaps they were taken from a poor original. A minor imperfection in an otherwise excellent book.

To those of us unable to afford the thousands of pounds which the originals, from which these coloured plates were reproduced, are currently fetching, a penny change from eight pounds is a bargain indeed.

Brian Gardiner

## DRAGONFLIES ATTRACTED TO LIGHT

by Nick Riddiford (9388)

Schoolton, Fair Isle, Shetland ZE2 9JU.

On the morning of 26th October 1991, after a night of moth trapping at the Parc Natural de S'Albufera in Mallorca, we released 79 *Aeschna mixta* and four *Sympetrum striolatum* from one Robinson MV trap. We caught smaller numbers (fewer than ten) on all other nights of trapping, and there were also individuals attracted to lighted windows at the Park house during that period. The trap was set in an open area overlooking grazed marshland. The night was warm and humid, there was no wind, the sky was overcast and there were intermittent light rain showers. The Park recorded a minimum temperature during the night of 16°C and precipitation of less than 0.1 l/m<sup>2</sup>. The maximum temperature on 25th October was 23°C, and it was 25°C on the 26th.

I am prompted to publish this observation after correspondence with Dr R.R. Askew. He commented: "Your observation is unusual and worth recording on two counts. Firstly, the number of dragonflies caught is exceptional. I think that a migration of *Aeschna mixta* was probably moving over your trapping area at the time, although I must confess that the date does seem late in the year for a migration and Mallorca is not a place I would expect to receive migrants. Secondly, the presence of the libellulid *Sympetrum striolatum* (not a species I associate with flying in anything less than full daylight) is noteworthy." (Dr R.R. Askew *in litt.*) The Park staff informed me that a week earlier the number of dragonflies present was so large that clouds of them "darkened the skies". From their descriptions, these were probably *Aeschna mixta*.

I am grateful to the management and staff of the Parc Natural de S'Albufera for supplying meteorological data and for permission to work there, and to Dr Askew for his interest and help. The moth trapping was part of a broad-based ecological study of the Park by Earthwatch Europe's "Project S'Albufera", aimed at monitoring for long-term environmental change. This is publication No. 6 in the Parc Natural de S'Albufera series.

## FURTHER RECORD OF A FREE-LOADING PSEUDOSCORPION

by Leigh Plester (2968)

G.W. Danahar's fascinating note on p. 276 of volume 50 helped recall a memory of a pseudoscorpion (*Chelifer* sp.) I found in an old blackbird's nest in my boyhood haunt of Wyre Forest, now a Midland reserve, on 12th February 1961. This specimen was duly presented to Mr Gibson, lecturer in entomology in the Dept. of Zoology and Comparative Physiology at the University of Birmingham, where I was at that time a student. When expressing his gratitude for the gift of a valuable specimen for the zoological museum, then housed in one of the old buildings, Mr Gibson informed me that the only other pseudoscorpion the department had in its collection was one that had been found in one of the laboratories in the same building clinging to the leg of a house fly!

Incidentally, if you are wondering how I can quote the date with such conviction, it was not difficult to remember the year, in view of the pattern of my education; it took a bit longer to find my nature diary for 1961, but only a few minutes to reach 12th February. Moral: nothing in nature is too insignificant to make a note of, so if you Junior members haven't yet adopted the habit of keeping a nature diary — or would a "nature diskette" be more appropriate for your generation? — then it's high time you did.

## RESTORED CANAL SUITS THE DRAGONFLIES

*by Arthur Cleverly (7265)*

*32 Cornwall Crescent, Devizes, Wilts SN10 5HG.*

I think that it is always enjoyable to set out to write an article, however short, on a subject that you know nothing about. So on this occasion I will let my pen blunder into dragonflies (and damselflies). I can tell you right away that I cannot tell one species from another of either.

But here in Devizes I have noticed in the last couple of years a big increase in the numbers of these insects.

This no doubt is due to the restoration of the Kennet and Avon Canal which had lain derelict and for the most part empty of water for many years. Now all of that has changed; the canal has been reopened, contains water and is navigable for canal boats over its whole length if they are lucky. (I'll explain the luck bit later.) Over its whole length the locks on the canal are fairly widely spaced, no doubt in these lengths many aquatic insects make their home, live and thrive.

In order to approach Devizes from the Bath end, the canal has to climb quite a steep hill and the locks are packed closely together. This is the famous (among canal enthusiasts) Caen Hill flight of locks.

On the main flight the locks are only some forty-five yards apart. Each lock requires a lot of water to fill it; far more than is held by just the canal between the various lock gates. Therefore the canal builders had to enlarge the canal between locks to form large "ponds" to act as reservoirs. Each of these "ponds" is some forty yards by sixty yards in size and they are fairly shallow, even when fully topped up, being only about three to four feet deep. On this main flight of locks there are about sixteen of these "ponds" and they are called "round pounds".

Water weeds grow in them unchecked and they are home to numerous coot and duck but are of course ideal breeding grounds for numerous aquatic insects. The most conspicuous of these are of course the dragonfly order. On a warm summer's day they seem to be everywhere. Damselflies in season rest everywhere on the grassy banks or hover in small clouds of about thirty over bits of floating weed. There is no doubt that the restoration of this canal has been the main cause of the increase in the numbers of dragonflies in the whole of the Devizes area.

I did mention earlier that the canal is navigable to boats "if they are lucky". This is because from its very beginning the Kennet and Avon Canal has been cursed by a water shortage — there always was a problem to maintain sufficient water in it.

Now this is much worse due to the large quantities being pumped out from under the chalk downs to supply the demand of ever-growing

Swindon. So water to the canal is almost rationed, and boats have to book their passage through the flight of locks well in advance, so not too many boats are able to pass through at all.

This means that those reservoir ponds do not get disturbed too much, a fact that must suit all of the aquatic life that lives in them.

This then is my bit concerning dragonflies. Not at all educational regarding the insects themselves, but maybe of interest to some members who do seek the haunts of them.

But away from dragonflies although still with aquatic insects. This summer on two occasions I was with a mothtrap at Imber, the village lost to the general population since it was taken over by the army in the 1940s and never released. The village is in the middle of the Imber artillery ranges on Salisbury Plain and appears to have no surface water near it, but on both of my visits quite a number of Caddis flies were attracted to the lights. Not an insect that I would have expected to turn up in such a place.

## BOOK REVIEW

*A Review of the scarce and threatened Hemiptera of Great Britain* by Peter Kirby. 1992. A4 paperback. Pp.267. The Joint Nature Conservation Committee, Peterborough. Price £9.00.

This is the second volume in a series entitled *UK Nature Conservation*, No. 1 having dealt with the Classification and Ranking of Water Beetle Communities in Great Britain (price £4.50). The intention of the series is to consider species of our fauna and flora under threat and the conservation practices which are appropriate in each case. The Hemiptera are considered under the groups Heteroptera and Auchenorrhyncha, with a history of their study in Britain and their distribution and habitats. There follows an excellent section on habitat management which augments some of the observations made in our own publication *Habitat Conservation for Insects*.

The species dealt with in this work are designated as Endangered, Vulnerable, Rare, Out of Danger, Endemic and Nationally Notable. The examples dealt with may fall into more than one of the categories. The species notes detail in each case distribution, habitat and ecology, status, threats, conservation and references. These are well covered. There is a 21 page bibliography, a species list, a Red Data Book list of species in categories and a Notable Species list.

Forthcoming titles will deal with Coleoptera and Diptera. The publishers are to be congratulated on what should prove to be a most important tool in the field of insect conservation.

PWC



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The Kingcombe Centre was established in 1988 in converted farm buildings on the banks of the River Hooke, within walking distance of all parts of the Kingcombe Meadows reserve and close to Powerstock reserve. It was part of the 600 acre Kingcombe Estate auctioned in 1987, which has never been farmed with herbicides, pesticides or any of the other trappings of 20th century high-tech agriculture.

This centre is run by Nigel and Jill Spring who organise numerous courses from a few hours to several days duration and although natural history is prominent, such activities as dance, music and archaeology are included. Of particular interest to entomologists is "The biology and ecology of bees and wasps" to be held 17th to 19th July which will be tutored by George Else. The course will consist of a weekend of fieldwork and lectures and will include visits to heathland and coastal sites for which this should be the best time of the year for this fascinating group of insects. Dr Else is the leading authority on these Hymenoptera having worked on them for 22 years in the Natural History Museum. He is currently writing a book on the Bees of the British Isles due to be published late this year or early next. For full details of this and other courses write or telephone 0300-20684, The Kingcombe Centre, Lower Kingcombe, Toller Porcorum, Dorchester DT2 0EQ.

## DEADLY COCKTAIL

*by Jan Koryszko (6089)*

Quite recently my house was modernised, and with all the mess, a lot of cleaning had to be done afterwards.

One evening I was mopping the kitchen with Flash Pine Liquid and Jeyes Pine Disinfectant in hot water. Then I left the outside door open to dry the kitchen floor. I returned 30 minutes later to see if the floor was dry. It was almost dry except for a few small patches. Then I noticed two woodlice on the edge of these patches which appeared to be consuming the liquid. Ten minutes later I returned to find them both dead; no doubt the liquid had killed them.

The attraction must have been the strong smell of pine. Why they consumed the liquid is a mystery. Later that evening I found three more dead woodlice in the kitchen. Have other members had similar observations?

(When I used to use a Pine Disinfectant for sterilising used larva cages I found that during their season wasps were very strongly attracted to the aroma of it and sometimes fell or flew into the washing-up water. This did not occur with some other disinfectants. — Editor)

## A FEBRUARY HUMMINGBIRD HAWKMOTH IN SUSSEX

by Michelle Green (5451)

On 29th February this year, sitting inside the Chichester branch of MacDonalds with my son and husband, we were amazed to see a Hummingbird hawkmoth (*Macroglossum stellatarum*) fly past within a few feet of us, causing great consternation among the other diners. I was surprised as I had not heard that this species survived our winter, but on reading L.Hugh Newman's book *Hawkmoths of Britain and Europe* I found that it is not unknown for specimens to be sighted in early spring, although in this case the creature's choice of location is perhaps cause for comment. It is doubtful whether it would survive, as there were no foodplants and the atmosphere was hot and dry, in addition to the danger to it from the clientele.

Most years we manage to sight one or more of these moths in and around our village (Singleton), usually in September. Last year was a particularly good one, with a sighting nearly every day for about three weeks, the last being on 10th October on a morning after a sharp frost. The moth was flying about seeking food and did not appear too bothered by the low temperature.

## NATIONAL REVIEW OF THE RECORDING & CONSERVATION OF THE RARER BRITISH MACRO-MOTHS



by Paul Waring

In order to continue the above project, details of which can be found in the *Entomologist's Record & Journal of Variation* 104: 192-196, it became necessary, at the end of February this year, for me to operate on a self-employed basis. The project ceased for the month of March 1992 and during April a new system of operation has been set up. The project now has funding from the JNCC during 1991 to cover those aspects to which country recorders and other contributors have become accustomed and activities have been resumed. It is hoped that some aspects of the practical work on the Schedule 5 "protected" moths and others will be continued with backing from other sources including English Nature's Species Recovery Programme. We regret any inconvenience these delays have caused. Provisional distribution maps will be circulated to the recording network as soon as they are ready. The new address for the project to which all correspondence should now be directed is: National Review of the Rarer British Macro-moths, c/o Dr Paul Waring, Windmill View, 1366 Lincoln Road, Werrington, Peterborough PE4 6LS.

## THE WOOD CRICKET AT WISLEY

by Andrew Halstead (6346)

In his article on crickets in Britain (*Bulletin* 51: 1-7) E.C.M. Haes commented on the wood cricket colony near the Royal Horticultural Society's Garden at Wisley, Surrey, and wondered whether it had survived enlargement of the car park. The answer is in the affirmative as wood crickets have spread onto the nearby Wisley Common where they should be safe from any future expansion of the car park. They have also been found within Wisley Garden itself and are probably widespread in the area.

It is often said that wood crickets came to Wisley with plants from Exbury Garden and this is a plausible explanation for this isolated colony. However, it is worth noting that during the 1950s and '60s, Exbury Garden was one of the major nurseries specialising in rhododendron and azalea production and they sent plants all over the country. There would, therefore, have been plenty of opportunities for the establishment of other colonies, at least in southern England, since the conditions in which rhododendrons and azaleas thrive are also likely to suit the crickets.

## BOOK REVIEW

*A Complete Guide to British Moths* by Margaret Brooks. Hardback quarto, pp.248, 25 coloured plates, numerous coloured illustrations. Published by Jonathan Cape, 1991. Price £19.99.

This book is the companion to a *Complete Guide to British Butterflies* by the same author, published in 1982. The book covers the biology, collecting, study, breeding, life histories and identification plates. The bulk of the book deals with the life histories of 81 species of moths covering all the 17 families of "macros"! It gives an illustrated account of each of the species and covers distribution, habitat, life cycle and foodplant with an illustrated guide of the various stages of each species. I cannot see the necessity for the book to be published other than as a coffee table book and this is probably why the book has already been remaindered at various bookshops at approximately £5.95, which makes it a good buy.

Unfortunately the book does not meet its title in that the coverage of the British moths is not complete, e.g. *Thalera fimbrialis* and a number of species occurring in the Channel Islands which are missing from the coverage. To complete the guide a number of plates are included which are of a very high standard for species not represented in the main text. These plates include for each species, on the facing page, a small note with information on the type of locality and when the adult is on the wing.

## SOME FURTHER NOTES FROM GLASGOW

*by Frank McCann (6291)*

On 6th March 1991 I went to Woodend Loch near Coalbridge to watch birds. I saw some coots, tufted ducks, mallard and gulls.

I found a small blackish, hairy caterpillar resting on a dead reed stem above the new growth of reeds coming up — fresh spring growth. I could not identify the species of larva — so I released it.

On leaving the loch-side, I crossed a field and found in that field, seven Ruby tiger larvae. Each one was some distance apart from the others, on the edges of troughs and ridges which were overgrown with various low-growing plants and grasses. It was a sunny day. The field lies just south of Woodend Loch and slopes north. I collected the larvae and noticed several more but kept it to seven.

I had found two Ruby tiger larvae at a field just east of Provanhall-Easterhouse, on 1st March 1991; all the larvae I found had come up to sun themselves in the early spring sunshine.

I found another before the onset of winter — around November, on a pavement below a wall and railing, behind which grass grew profusely. I placed that one onto the ground from which it had wandered. This was at the other side of the M8 motorway bridge just north of Queenslie.

The method I used for keeping the larvae was as follows:-

I made a wooden box about twelve inches square and placed in it dead grass stems which I had collected from the field at Woodend Loch.

I put the nine Ruby tiger larvae in the cage and covered the top with white cotton netting. Soon afterwards the larvae spun cocoons and pupated, not on the grasses but on the top sides of the container. When the weather got warmer I sprayed the cocoons regularly with water.

In late May the moths began to emerge — I released all of them from the verandah into my garden. My verandah faces south and gets a lot of sun.

In late April - early May I found about six Garden tiger moth larvae on a path leading to Bargeddie Parish Church. The first one I found was small, and feeding on a nettle, others I found further on were mostly feeding on buttercup leaves at the base of a slope facing south. These I reared and after a while I put them into my garden before they were fully-grown. I had fed them mostly on nettle and lettuce.



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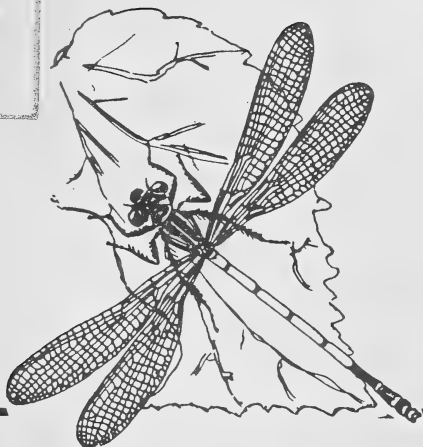
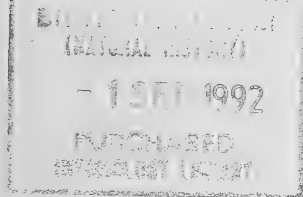
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Volume 51, No. 383, August, 1992

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# **The Bulletin of the Amateur Entomologists' Society**

**EDITOR**

**BRIAN O. C. GARDINER, F.I.S., F.R.E.S.**

# The Amateur Entomologists' Society

Founded in 1935

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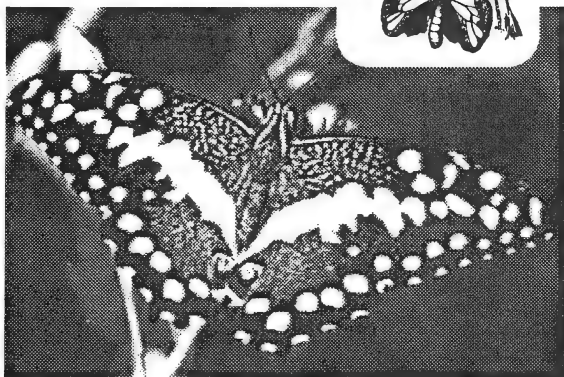
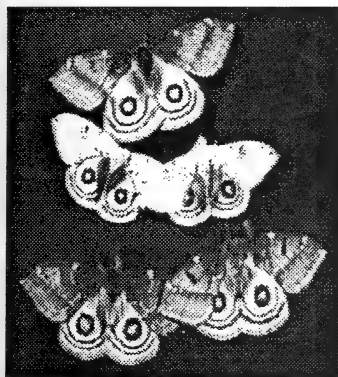
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The Society publishes a quarterly journal and the following books:

*Larvae of British Lepidoptera not figured by Buckler* by G.M. Haggert, 1981, 150pp, 35 colour plates.....Hardback, £18.00 (p&p £2.00)

*A field guide to the smaller British Lepidoptera* edited by A.M. Emmet, 2nd edition revised, 1988, 288pp.....Paperback, £18.00 (p&p £1.50)

*An identification guide to British Pugs* by D. Agassiz *et al.*, 1981, 44pp, 4 colour plates.....Hardback, £9.00 (p&p 75p). Paperback, £6.00 (p&p 75p)

*British hoverflies: an illustrated identification guide* by A. Stubbs and S. Falk, 2nd edition, 1986, 270pp, 12 colour plates.....Hardback, £21.00 (p&p £2.50)

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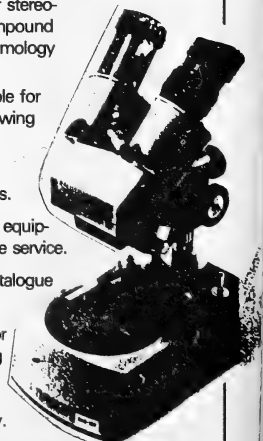
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# AES BULLETIN

No. 383



## THE AMATEUR ENTOMOLOGISTS' SOCIETY

### ANNUAL REPORTS FOR 1991 OF THE SOCIETY AND ITS ASSOCIATED BODIES

#### OF THE COUNCIL

MEMBERSHIP OF THE Society as at 31st December 1991 was 1887 members. This comprised nine Honorary, 55 life, 23 Associate, ten exchange, 1695 Ordinary and 95 Junior members.

This means that 1991 has shown an overall increase in membership of 72 members. This more than redresses the slight loss in membership that occurred during 1990. The continued high turnover of members each year though does create a high workload for the Registrar.

The Council met on four occasions during the year at the Central Hall, Westminster. The Annual General Meeting was held at the rooms of the Royal Entomological Society on 20th April and A. Webb gave an interesting lecture entitled "Tarantulas".

The Annual Exhibition held at Kempton Park Racecourse was again very successful and R. McCormick is thanked for all the hard work he does towards organising this event.

The Council reports with regret the death of several members notified to them during the year, including F.I. Ball, I.D. Richmond and D.G. Armstrong.

Lastly and by no means least, Council also has the sad task of reporting the recent death of its Registrar, Mrs Nancy Cribb, and we would like to take this chance to express our condolences to Peter Cribb, her husband, and also our very grateful thanks for all the effort they have both put towards the Society over the years.

M.J.R. Jordan, *Honorary Secretary*

## OF THE TREASURER

As expected, the Society's financial results for the year ended 31st December 1991 show the continuing impact of inflation, particularly on postage costs. General fund expenditure increased by £2,107 to £19,995 whilst income only increased by £1,129 to £19,742 with a consequent deficit of £253 for the year. The cost of printing *Bulletins* increased significantly, mainly due to the introduction of colour plates the cost of which has been met from the Hammond Trust Fund. The deficit in the current year is likely to increase significantly as there are a number of increases in the pipeline and a completely revised membership list is due to be printed in the summer. The Finance Committee has considered the subscription rate for 1993 in view of the fact that subscription income no longer covers the cost of producing the *Bulletin* and despatching it to members, being 30% less than the cost. However, it has been agreed that for the fifth year subscriptions will remain as for 1989 and for this the Society and its members are indebted to those members who make generous donations and to the income derived from testamentary bequests made by past members. This income also pays for the general management of the Society. When compared with other Societies, I am sure that members will agree that the subscription rates are extremely good value.

On the Publications front the Society had a record year with the number of books, leaflets and pamphlets sold increasing from 1,356 in 1990 to 2,503 in 1991. This was mainly due to the publication of a completely revised edition of *A Coleopterist's Handbook* and the new publication *Habitat Conservation for Insects — A Neglected Green Issue*. The gross value of books sold (at retail prices) increased from £5,757 to £16,976 and the trading surplus increased from £1,748 to £2,847. Your Council took the view that it should demonstrate the Society's commitment to Conservation in the UK by marketing the new Conservation Handbook at a very reasonable price. This has been achieved by subsidising the cost of setting up and printing the colour plates from the Crow Trust Fund and by reducing the margin between the consequent cost to the Society and trade prices.

R.A. Fry, *Hon. Treasurer*

## OF THE YOUTH SECRETARY

The post of Youth Secretary was created at the June meeting of the Council. This, along with the introduction of a Junior Section to the *Bulletin* it is hoped will encourage more interest from younger entomologists.

The first Junior Section appeared in the December *Bulletin*, the following two have been completed and will appear in future issues. It was decided to limit the publication of the Junior Section to three per year, at least until such time as there is sufficient input to warrant more.

The year 1991 saw the Sixth Fieldtrip organised by the AES for junior members. The event was held near Coventry and was attended by ten young entomologists. We hope to hold more fieldtrips for our members in the future, both in this country and abroad.

The Youth Secretary post and Junior Section have both received a positive response from the members, and we therefore feel encouraged to continue our increased effort to promote entomology among the young.

Darren J. Mann, *Hon. Youth Secretary*

### INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31st DECEMBER 1991

1990 £	1991 £    £	1990 £	1991 £    £
<b>Bulletin Costs:</b>		<b>Subscriptions:</b>	
413 Editorial	268	10082 Ordinary & Affiliate	10785
8283 Printing	9761	384 Junior	380
4044 Despatch	4877	306 Life Membership Fund	318
204 Indices	205		11483
	15111	1084 <b>Donations:</b>	1147
<b>Membership Services:</b>		358 Enrolment Fees:	518
409 Membership List	405		
306 Wants & Exchange Lists	66    471	Investment Income (Gross):	
<b>Administration etc:</b>		3454 National Savings and Midland Bank Accounts	2976
577 Stationery & Notices	681	<b>Other Income (Net):</b>	
188 Postage & Carriage	343	2163 Advertising Revenue	1770
1247 Registrar's Fees	1200	761 Annual Exhibition	942
768 Meetings Expenses	897	48 Badges	55
658 Depreciation	547		2767
288 Insurance	378	<b>Hammond Fund subsidy for Bulletin colour plates:</b>	851
215 Sundry Expenses	184    4230		19742
288 Conservation:	183		
17888	19995	18613	
		— Deficit to General Fund:	253
725 Surplus Income to General Fund:	—	18613	19995
18613	19995		

### PUBLICATIONS TRADING ACCOUNT FOR THE YEAR ENDED 31st DECEMBER 1991

EXPENDITURE		INCOME	
1990 £	1991 £	1990 £	1991 £
<b>New and Revised Publications Costs:</b>		5757 <b>Sales (Gross)</b>	16976
275 Editorial etc.	256	69 Increase in value of stocks:	10223
1500 Printing	21495	— Subsidy from Crow Fund to Conservation Handbook:	4189
— Decrease in value of stocks:	—		
2303 Selling and other expenses:	6790		
1748 Trading Surplus to Publications Fund:	2847		
5826	31388	5826	31388

R.A. Fry, Dip.E.E., C.Eng., M.I.E.E.  
*Hon. Treasurer.*

### The Report of the Auditors to the Members of the Amateur Entomologists' Society

We have examined the records of the Amateur Entomologists' Society and, in our opinion, the Balance Sheet gives a true and fair view of the state of affairs on 31st December 1991 and of the Income and Expenditure for the year ended on that date.

A.J. PICKLES, F.C.A.

**AMATEUR ENTOMOLOGISTS' SOCIETY  
BALANCE SHEET AS AT 31st DECEMBER 1991**

1990		1991		1990		1991	
£		£	£	£		£	£
<b>General Funds:</b>				<b>Fixed Assets:</b>			
27795	Balance at 1st January 1990	28520		4113	Office Equipment at cost	4213	
725	Add: Surplus income (deficit) for year	(253)		1481	Less: Total depreciation	2185	
28520		28267		2632			2185
5722	Life Membership Fund:	6514			Investments at cost:		
307	Ansorge Award Fund:	325		660	£712 Treas. 12 3/4 % 1995	660	
76468	Crow & Hammond Trust Fund:	81632		1260	£1470 Treas. 9 1/2 % 1999	1260	
				150	109 M&G Charifund Income Units	150	
	<b>Creditors:</b>			106007	NSB and Midland Bank Investment accounts	112575	
3681	Advance Subscriptions	4187					114645
400	Advance Donations	561			<b>Current Assets:</b>		
	Other	150	4898	304	Stocks at cost	254	
				925	Sundry debtors	540	
				3110	Cash at Bank Current Account	3962	
				50	Cash in Hand	50	
							4806
<u>115098</u>		<u>121636</u>		<u>115098</u>		<u>121636</u>	

**PUBLICATIONS FUND AT 31st DECEMBER 1991**

1990		1991		1990		1991	
£		£	£	£		£	
41125	<b>Balance at 1st January 1991</b>	46236			<b>Investments:</b>		
1748	Add: Trading Surplus for the year	2847		26298	NSB and Midland Bank Investment accounts	1361	
3363	Interest — NSB and Midland Savings Accounts	2042			<b>Current Assets:</b>		
46236		51125		16069	Stocks at lower of cost or valuation	26292	
2303	Creditors:	6790		5708	Sundry Debtors	16764	
				464	Cash at Bank	1247	
<u>48539</u>		<u>57915</u>		<u>48539</u>		<u>44303</u>	
						<u>57915</u>	

**OF THE CONSERVATION COMMITTEE AND OF THE SOCIETY'S  
REPRESENTATIVE ON THE JOINT COMMITTEE FOR THE  
CONSERVATION OF BRITISH INSECTS**

Our work was considerably helped in 1991 by the continued strengthening of the JCCBI Executive Subcommittee. The main JCCBI welcomed Dr Paul Whalley as its new Chairman, on the retirement of Prof. K. Mellanby from that post. The work of the JCCBI Secretary, for many years carried out by Dr Michael Morris, has been largely transferred to the Conservation Officer, Miss Helen Smith. Dr Morris has taken up the new post of Honorary President of the JCCBI, while continuing as Executive Subcommittee Chairman. The main Committee also accepted the Executive's suggestion that it should open its membership to bodies interested in the conservation of non-insect invertebrates, changing its name in the process.

Now that the JCCBI Executive has become more effective, it is able to give a firm brief to our representative on Wildlife Link, and thus to help raise the status of invertebrates within the conservation movement. The Link is providing very worthwhile contact between insect conservationists and senior government officials and politicians who might otherwise be unaware of our views. Unfortunately, however, all this is going to cost more because of the split in the former Nature Conservancy Council and the consequent need for new Scottish and Welsh Links to be set up. In addition, JCCBI was asked to pay a higher subscription fee for central Link membership and the need for increased contributions from JCCBI member societies was put to them for consideration.

Our Society, along with others in the JCCBI, commented on the drafts of several important documents being prepared by Wildlife Link, by the Royal Society for Nature Conservation and by the Joint Nature Conservation Committee. These included policy statements on the future of British forestry and the quinquennial review of species protected under the Wildlife and Countryside Act. Details of these matters are to be published in *Insect Conservation News*.

The JCCBI's own initiatives included working towards the promotion of adequate site-based invertebrate surveys, largely at the instigation of the AES. Our Society's JCCBI Representative drafted several detailed proposals in this area, all of which were accepted by the main JCCBI and referred to its Executive for development. Of these proposals, one was followed up almost to completion during the year; the preparation by Mr Steve Brooks of a set of standards for survey procedures. These should help site surveyors, while also being useful in public inquiries and other situations where there is a need to know whether surveys have been adequate. Considerable progress was also made with a set of guidelines defining the circumstances in which survey work might fairly attract payment or reimbursement. Another AES proposal, where rather less progress was achieved, is the setting up of a clearing house for facilitating contact between appropriate surveyors and customers; the main reason for delay was the need to seek legal advice.

Another AES proposal was the establishment of an invertebrate conservation fund. At the moment, no such target for donations specifically intended for this cause exists in the UK. A wide range of projects could eventually be supported with the proceeds, but the initial goal would be to secure long-term funding for the post of Conservation Officer, which is currently part-time and financed by a three year grant from the Worldwide Fund for Nature.

Our Society was represented not only at all meetings of the JCCBI and its Executive during the year — a total of eight meetings — but also at the Sunday Times Exhibition in July, where we helped to man a small JCCBI display on the stand of the World Conservation Monitoring Centre, and at an Environment Council meeting on environmental consensus, held in October. Our own Conservation Committee also met, on 10th March 1991, to discuss many of the matters referred to in this report. As usual, it also organised a conservation stand at the AES Exhibition.

An outstanding success during the year was the publication of *Habitat Conservation for Insects: a Neglected Green Issue*. This book received many highly complimentary reviews and well over half of the print run of 1700 had been sold by the end of the year. Unfortunately, *Insect Conservation News* did not re-appear but hopes remain high for a re-launch in 1992.

Of course, no amount of success with organisation or publicity is of value without achievements on the ground, and it must be admitted that we have pursued individual site protection less actively than before. However, we made written submissions on several development projects. Our scheme for local representation to improve site-based work still stands, and there have been some additional offers of help from members. The challenge is to make this into an active network, and we invite members to help us both locally and centrally in this work.

D. Lonsdale

C.R. Betts

## REPORT OF, AND EXHIBITORS AT, THE 1991 ANNUAL EXHIBITION

by Roy McCormick (3375)

The day started grey but dry, a good queue formed about an hour before opening time, and a couple of the committee members sold programmes to ease the rush when the doors were opened.

The numbers of people attending were slightly down on last year, with 954 receipts being recorded; this downward trend seems to be with us, although I hope that we can attract more people in the future.

There were 27 applications for exhibit table space, with 27 exhibits and reports; a further six applications did not have a report and I had six exhibitors who did not sent me the booking form; if all the people who booked tables turned up with an exhibit, we should have had a total of 31. A poor showing when last year 50 plus exhibited and we were having to bring in more tables to make space for them. *Come along all you members (1800+) — where are you? It is, after all, your Exhibition. I have placed the Exhibits in the most prominent position, and I promise your report will be done in full. What more can I do?*

Fifty-seven Dealers attended selling a variety of goods including a much restricted trade in live and deadstock; also exhibiting were seven other Natural History Societies.

I found that the catering this year was excellent; I hope you all agree, but I can only comment on what I found when I went for lunch. The bar was well-staffed and all the food counters were open, and I received few complaints from people I asked; all in all a good showing, so let us all hope that this side of our Exhibition is well and truly sorted out.

I would like to thank the following members for helping me to set up on Friday 4th October. Martin Love, Colin Davey, Mark Colvin, David Young, Graham Collins and Peter Cribb, who although last-named has been a stalwart by attending for as many years as I can remember; this does not diminish my praise for the other people mentioned. My thanks also go to the couple of members who helped clear up at the end and to the helpers throughout the day. The Exhibition would not run without this valuable source of assistance. Carry on the good work!

A list of Exhibitors follows:

**Peter Baker** (9086). North American butterflies, Satyridae to Riodinidae. The selection shown included between half and one-third of the species in these families resident in the USA and Canada. In most cases these insects have a typical Holarctic appearance — in fact a number of species are common to both Europe and America, but many species from the southern States have a very Neotropical appearance, eg *Agraulis vanillae*, *Dryas julia* and *Heliconius charitonia*.

Insects of particular note were: *Coenonympha tullia californica*. This is one of the complex of browns all of which are white. The *Oeneis* browns. A number of different species of this genus occur and many are limited in range to one mountain top. The genus *Phyciodes* which tend to look similar in collections and with many overlapping variations in range of markings. They differ very obviously in the field and have different habitat requirements. *Nymphalis antiopa*. The American Mourning cloak is often much larger than the European Camberwell beauty. The bred specimens are on the small side. *Eunica tatila*. The Florida purple wing is representative of a large tropical group. They fly low in wooded terrain, and the iridescent purple coloration makes them very difficult to capture. Mr Baker promises to show further groups of these butterflies at the 1992 Exhibition.

**Clive Betts** (4976). **The Young Entomologists Scheme.** Funded by The Royal Entomological Society, this project has begun to support and encourage a greater interest in teaching with insects with the ultimate aim of fostering new interest among young people both in and out of school. Teachers' resource packs are now nearing completion and training courses for them have been run and more are planned. In addition the scheme has helped organise and lead a number of field trips and talks in its pilot area around Exeter, in Devon.

**P.E. Bragg** (8737). Exhibit of live and preserved Phasmids collected during the University of Brunei Darussalam, Royal Geographical Society, Brunei Rainforest Project, at Kuala Belalong in Brunei during August 1991. Some species from Sarawak were also shown along with photographs from the Rainforest Project.

**Stephen Button** (7649). British Macrolepidoptera. Exhibited were vars. of British butterflies collected in Wiltshire during 1991.

**T. Carter** (6178). British macrolepidoptera. Species shown were Red admiral with pale bands, taken in his garden at Boston, Lincs, August 1991, with typical for comparison. Small white, ab. *fasciata*, female, taken on buddleia in his garden,

with typical for comparison. Gatekeeper male and female, ab. *multiocellata*, taken at Boston, Lincs this year. Large heath, ab. *cockayne*, from Shropshire, male and female, taken over the last two years. Small heath, ssp. *rhoulensis*, taken this year in early June on high ground near Loch Arkalg, Inverness, while on holiday, and Scotch Argus with pale forewing, maybe pathological, from Inverness in the first week of August on a boggy hillside, where the species swarmed in thousands.

**J.M. Chalmers-Hunt** (1683). Microlepidoptera, two drawers of Coleophoridae.

**G.A. Collins** (1036). Preservation of colour in the Odonata by immersion in acetone. Three examples of *Aeshna mixta* were shown, one dried normally resulting in complete loss of colour and markings, the other two immersed in acetone for 24 hours with colours preserved.

**David Copestake** (8471). British Coleoptera.

**Peter Cribb** (2270). A selection of butterflies taken on a camping holiday in the Jura, Vosges and Dauphine Alps during late July 1991, including *Lopinga achine* from which eggs were obtained, and the larvae from these are now feeding on *Poa annua*. Also examples of butterflies taken in June in Alberta, near St Albert and in the Banff National Park in the Rockies. Several British species were observed including *V. atalanta*, *C. cardui* (very common), *N. antiopa*, *A. rapae*, *A. napi*, *C. palaemon* and *C. selene*. Several species are also very like European ones, eg the Western-tailed blue is almost identical with the Short-tailed blue, the Prairie ringlet like *C. tullia* and their *P. comma* looks like our *P. c-album*, feeding on the same plants, elm, hop and nettles.

**Colin Drage** (8644). Aberration and variation in four species of British butterflies bred or captured in the old County of Huntingdonshire during 1990/1991. Shown were, Large copper (*batavus*); a rare female underside aberration, ab. *radiata*. Hedge brown, ab. *multiocellata*. Meadow brown: various ab. *grisea-aurea*. Large skipper, a probable pathological specimen.

**R. Dyke** (4182). Aberrations of Macrolepidoptera. Exhibited were: *Lycaena phlaeas* (Small copper) ab. *fuscae*, taken at Dungeness on 2.vi.1991 and *Zygaena filipendulae* (Six-spot burnet) ab. *flava*, taken at Scremerston, Berwick-on-Tweed on 16.vii.1991.

**C.J. Gardiner** (5249). British Macrolepidoptera: recent moths from North Cambridgeshire.

**Norman Hall** (7895). European Lepidoptera from France and Spain, including specimens of *Spodoptera exigua cilium* which was new to Britain in 1991, and *Spodoptera exigua*, Small mottled willow, for comparison.

**David Hall** (5239). Exotic Macrolepidoptera. Exhibited were specimens of the Azores Grayling from Flores, Faial and S s Mignel, to show the three species present: *Hipparchia azorina*, *H. calderense* and *H. mignelensis*. Also shown were four abs. of *Colias croceus*, the Clouded yellow, from Faial, Azores.

**Andrew Halstead** (6346). British Coleoptera and Exotic other Orders. The main exhibit was a map showing the distribution of the Red lilly beetle, *Lilioceris lili*



(Coleoptera: Chrysomelidae), in southern England. Since becoming established at Chobham, Surrey in 1940, this garden pest of *Lilium* and *Fritillaria* ssp. has spread throughout Surrey and parts of the adjoining counties, although there is no evidence of long distance spread either by the beetles' own efforts or with the assistance of gardeners and nurserymen transporting plants. Live specimens of the adults and larvae were also shown together with information on their life cycle. Exotic insects shown were two live imports with plant material. One was a Praying mantis found as a last instar nymph on orchids imported from Thailand. This had become an adult in time for the Exhibition. The second specimen was a caterpillar found on sugar peas imported from Zimbabwe.

**Robin James** (5005). British Macrolepidoptera, Pieridae.

**K.C. Lewis** (3680). British Coleoptera showing beetles from his local woods: Chalk, Joydens, Broadleaze and Pine Woods, Bexley, Kent.

**R.F. McCormick** (3375) and **Colin Penney** (3880). British Macrolepidoptera. Exhibited were interesting species taken in 1991. Species included were *Senta flammea* and *Phragmataecia castaneae* from Chippenham Fen. *Chlorochlamys viridata* and *Agriphila latistria* from Chobham Common. *Mythimna putrescens*, *Hadena luteago barrettii*, *Margaritia sticticalis* and *Eudonia lineola* from the Lizard in Cornwall. *Polia bombycina* and *Oria musculosa* from Tilshead. *Herminia tarsicrinalis* and *Nascia ciliaris* from Thorpness.

**B.J. MacNulty** (4528). Lepidoptera from the Gower Peninsular forming part of an ongoing series of exhibits which will eventually cover all the Lepidoptera found on the Gower. Specimens shown for reasons of conservation, are not all from this site. Exhibited were: *Pieris brassicae*, *rapae* and *napi*. *Pontia daplidice*. *Anthocharis cardamines*. *Colias croceus* and *hyale*. *Gonepteryx rhamni*. *Polygonia c-album*. *Aglais urticae*. *Inachis io*. *Cynthia cardui*. *Vanessa atalanta*. *Argynnis paphia* and *aglaja*. *Boloria euphrosyne* and *selene*. *Euphydryas aurinia*. *Melanargia galathea*. *Hipparchia semele*. *Pararge aegeria*. *Lasiommata megera*. *Maniola jurtina*. *Pyronia tithonus*. *Aphantopus hyperantus*. *Coenonympha pamphilus*.

**Steve Nash** (7088). British Lepidoptera. Exhibited were *M. jurtina*, ab. *grisea-argentea* (Meadow brown) and *C. croceus* (Clouded yellow) from Fernham, Berks (VC22). *A. gamma* (Silver Y) melanic ab. *A. jota* (Plain golden Y) with the "Y" marking absent. A selection of migrants taken in late 1990 included *M. loreyi* (Cosmopolitan) (new to VC22), *M. albipuncta* (White points) and *M. unipuncta* (White speck). Microlepidoptera shown were *Ethmia bipunctella* from Uffington, Berks (E.W. Classey). A migrant or vagrant from the south coast, and *Phyllonorycter platani*, recorded new to Britain in October 1990 by A.M. Emmet at the BENHS Annual Exhibition.

**David Oram** (7127). Assisted by Rebecca, aged seven and Richard, aged 11. Insects from a garden in Leatherhead. Orders exhibited were Odonata, Orthoptera, Hemiptera, Neuroptera, Lepidoptera, Diptera, Hymenoptera and some Coleoptera.

**John Payne** (5293). British Macrolepidoptera, which included aberrations of British butterflies.

**Richard Revels** (3942). Photographs of insects.

**Tony Rouse** (6572). British Macrolepidoptera. Exhibited were larvae of *Agrius convolvuli* found at Greatstone, Kent on 27.ix.1991 along with seven hatched eggs, plus eight unhatched eggs, two of which hatched on 2.xii.1991. Also shown was *Macroglossum stellatarum* ex. larva found at Dungeness, Kent on 17.ix.1991.

**P.J.C. Russell** (8977). Rhopalocera from France. Shown was a selection of butterflies from N.E. and East Central France displayed in three cases. Among the typical specimens were included a number of dwarf and aberrant forms taken in the summer of 1991, some of which may well have resulted from the exceptionally cold and wet spring and early summer in that part of Europe. Also included were two intersexes, one of *Q. quercus* the other of *M. diamina*. It is thought that intersexes may result from cross breeding of two spatially separated populations, and it is possible that the exceptionally good weather of the previous two years may have resulted in a much greater dispersal of some specimens of these species, both of which usually remain in the immediate vicinity of their breeding localities, and this could have allowed crossbreeding between two hitherto separate populations.

**Malcolm Simpson** (4859). British Macrolepidoptera. Exhibited was a display of Small tortoiseshell butterflies taken at Wistow, Cambridgeshire between the years 1975 and 1991, showing a wide variety of coloration and markings. Also a small selection of this butterfly taken in Caithness, Scotland, alongside the Dounreay Reactor Establishment in September 1985.

**Bernard Skinner** (2470). British Lepidoptera. Exhibited was a drawer of the Crambinae (Pyralidae), showing all the resident species. Lepidoptera bred during 1991, were series of *Hypena obsitalis* from South Devon, and *Hadena caesia* from the Isle of Man. Lepidoptera taken during 1991, included an *Arctia caja* devoid of brown and black wing markings, a melanic *Autographa gamma* and three examples of *Acrobasis tumidana* from southern England in August and early September. Also shown was a photograph of a newly emerged Bergers clouded yellow (*Colias alfacariensis*), one of about 30 found emerging or flying on Portland, Dorset during September 1991.

**St Ivo Entomological and Natural History Society, Mr H. Berman** (2941). The usual excellent exhibit showing the menagerie that this group of children have kept over the years. This included the annual attraction of Boas and Pythons plus all things furry and scaly. (Members will be saddened to learn that due to an arsonist much of St Ivo's menagerie and premises has been lost in a fire.)

**Raymond Thompson** (9301). The British Dragonfly Society showing videos, photographs and other things relating to these insects; a fine showing attended all day by Dr Thompson or one of his helpers.

**David Veevers** (8910J). An exhibit of giant snails, cockroaches and other orders.

**Paul Waring** (4220). Two-fold exhibit. One in the main hall showing a display of photographs and text reporting the continuing practical conservation work on

Britain's rarer moths. The fire in August 1991 which scorched 75% of the barberry at the main British colony of the Barberry carpet, *Pareulype berberata*, was reported. The effects of the exclusion of sheep from the site of the only British colony of the New Forest burnet, *Zygaena viciae*, were illustrated with a photograph showing how the site has recovered since May 1991, when the area was fenced off from grazing. Work on the other rare species such as the Small eggar, *Eriogaster lanestris* was also illustrated. This exhibit also included a display illustrating the results of the 1991 survey of the distribution and status of the Striped lychnis, *Cucullia lychnitis*. Photographs showed some of the sites on which larvae were found, and a map indicated the distribution of post-1979 records. During 1991 larvae were found in Oxfordshire, Buckinghamshire, Hampshire and West Sussex. No larvae were found in Wiltshire in spite of searches by volunteers over a wide area including former localities where the species was common in the 1950s and 1960s. *C. lychnitis* has not been seen in Gloucestershire or East Anglia in the last decade.

The second part of Paul's exhibit was in the Exhibits Section and included foreign Lepidoptera with over 90 species of African butterflies and moths collected in the Bangangai Game Reserve on the Sudan/Zaire border between 4th and 13th April 1982 together with photographs of the rain forest and savannah woodland habitats in which they were recorded. Of particular interest was a suite of unrelated mimetic species all of which have similar orange, black and white markings and included *Euphaedra eleus*, *E. ruspina*, *Aletis erici* and *Phaegorista similis*. At least some of these are known to be distasteful to predators. The extreme sexual dimorphism of many species such as *Bebearia tentyris*, *B. mandinga* and *Cymothoe caenis* was also illustrated.

British Lepidoptera included unusual forms of Lime hawkmoth, *Mimas tiliae* and Lesser treble bar, *Aplocera efformata*. A female of the all-red form of *M. tiliae* was captured on 22.vi.1991 at a light trap at his home address in Werrington, Peterborough (VC32 Northants). Two males were seen with similar red markings during June in the same trap. The typical forms of male and female *M. tiliae* from Werrington were shown for comparison. A male *A. efformata* completely lacking the middle bar which normally crosses the centre of the forewing. The specimen was captured at a light trap operated on 14.viii.1991 in Wittering Copse, Collyweston (VC32 Northants) in the new Collyweston Great Wood National Nature Reserve. Typical local specimens of *A. efformata* and *A. plagiata* were shown for comparison.

**David Wareham (9370).** A continuation exhibit to show the on-going work being done on Glow-worms from Fentmell Down, a Dorset Naturalist Trust Reserve. Photographs showing this work were displayed.

**David Young (5547).** Foreign and British Macrolepidoptera, the first part relating to a trip to Brazil in December 1990 with some insects collected during a non-entomological trip. Some species have been named and a request for identification of some and confirmation of those already named would be greatly appreciated.

Specimens principally from two areas in Sao Paulo state.

(a) From Paulinia, a pleasant town near the equally pleasant city of Campinas. Specimens collected from a small piece of waste ground within the town to which he was directed by some local boys who proved to be somewhat useful in pointing out the presence of wasps' nests, snakes etc.

(b) From Cipo, near the huge city of Sao Paulo. A most attractive area in what appears to be the remnants of part of the Atlantic Forest, now greatly reduced in area. Whilst not Amazonia, the insect, bird and plant populations were both prolific and impressive.

The second part relates to British Lepidoptera caught or bred in 1990/91. *Zygaena loti scotica*, Slender Scotch burnet from the Isle of Mull, Scotland, June 1991. Species recorded from only one area of the island where it was present in good numbers. Even here the major part of the site could well be destroyed by a lunatic with a mechanical excavator. Other old sites now seem to be grazed out by sheep and no longer suitable for *loti*.

*Scotopteryx peribolata* (Spanish carpet), captured at Studland, Dorset on 12.ix.1990 at MV. Migrant. This could be the fourth specimen from the British mainland, unless there have been further records since those listed by Bernard Skinner in his excellent book. *Euphyia biangulata* (Cloaked carpet), taken in Tugley Wood, Surrey on 19.viii.1991; the first moth on the sheet. *Euplagia quadripunctaria* (Jersey tiger), captured at Portland, Dorset on 24.viii.1991 to light; assumed migrant. *Spilosoma lubricipeda* (White ermine). specimens from the Isle of Mull with ochreous ground colour to the forewings, formed a substantial proportion of individuals recorded at MV (estimated 33%). *Diacrisia sannio*, ab. *maerens* (Clouded buff) from Cumbria in June 1991. *Acronicta menyanthidis scotica* (Light knot-grass) bred ex female from Crubenmore, Inverness-shire. Minor aberrations of *Lomaspilis marginata* (Clouded border), *Idaea aversata* (Riband wave) and *Epirrhoe fluctuata* (Garden carpet).

*Perconia strigillaria* (Grass wave); most specimens from Cumbria, seen June 1991, and have a much lighter ground colour than those found in the more southern populations. *Aphantopus hyperantus* (Ringlet). Salcey Forest, Northants; bred ex larvae. *Coenonympha tullia* (Large heath), ssp. *davus* from Cumbria where it is very common, on 20.vi.91, and ssp. *scotica* from the Isle of Mull where it was only just emerging in late June. Specimens of the well-known dwarf races of *Hipparchia semele*, ssp. *thyone* and *Plebejus argus*, ssp. *caernensis* from North Wales.

The compiler of these notes is not responsible for claims made by the exhibitors, however, an effort has been made to be as accurate as possible.

## PRACTICAL HINT — LOCALITY

by Christopher Nissen (7002)

A colony of the Glanville fritillary (*Melitaea cinxia*) was established artificially near the railway line at Lymington, Hampshire, many years ago and I wonder if it still survives?

**STREBLOTE PANDA — A SOUTHERN EUROPEAN LASIOCAMPID**

by Gareth King (8585)

21 Becondale Road, Norwood, London SE19.

I first came across this lasiocampid in September 1989, when I found four very large larvae not unlike the lappet moth. They were found on *Retama monosperma* which grows throughout the coastal regions of Spain's most south-westerly province, Huelva. *Streblote panda* (Hübner 1810) is known to be distributed in southern and eastern Spain along the coast and along the southern Mediterranean countries of the Magreb to Egypt. In French it is known as "le mégasome recourbé". Related species are *S. acaciae* (Klug 1829) which is found in the northern desert regions of Africa to Kenya, and *S. negraguii* (Rungs 1950) another African species limited to the Sous Valley in south-western Morocco.

According to Huertas Dionisio (*Shilap*, 6, 1980) its main foodplant is *R. monosperma*, already cited, also *R. sphaenocarpa* and *Helimium halimifolium*. Other hostplants include *Prunus domestica*, *Tamarix gallica*, *T. orientalis*, *Pistacia lentiscus*, *P. terebinthus*, *P. vera*, *Anthyllis cytisoides*, *Citrus aurantium*, *Spartium junceum* and *Acacia salina*. Gómez de Aizpúrua (1980) also records *Arbutus unedo*.

In captivity I had only ever reared this species on "Retama" in Spain, but here in Britain they have taken broom and in July 1990 I had fully-grown larvae on bramble. John Gregory tells me he has reared them on apple. In any case the larvae have a preference for the flowers of the foodplant.

The species is continuously brooded, due in no small part to the benign climate where it is found. When initially discovered under a very hot sun, the larvae were not very abundant, a return trip in December of the same year both the larvae and the cocoons covered the "Retama" bushes. When I actually lived in Huelva between January and May 1991, I found larvae and cocoons in all months, never far from the aforementioned plant. The species could be said to be common; however its distribution is very local, as seemingly favourable areas are bereft of the insect. For example, along the road between Ayamonte and Isla Canela it is very common, along with larvae of *Lasiocampa trifolii ratamae* (Herrich-Shaffer 1843-50). The only other areas where I found larvae or the odd cocoon were in Punta Umbria, Punta del Moral and El Portil.

Localities mentioned by Huertas Dionisio also include Isla Cristina, Corrales, Huelva (city), La Rabida, Laguna de Las Madres, Mazagón and El Abalario. There were several areas along the coast where I never found a single example despite the ubiquitous "Retama". This might be explained by the top-heavy female being a poor flier.

The ova are laid in small batches on the tips of the "Retama" branches, three weeks normally elapsing before the larvae emerge. On hatching the larvae group themselves on a single stem reaching out to feed on the leaves before returning to their original position to rest. The larvae are gregarious until the third instar. When fully developed the caterpillar measures some 80mm with the female larvae being somewhat larger. It is an impressive species in this stage and makes itself even more so by the presence of black bristles behind its nape which in a normal state are folded away, but are revealed when the animal is disturbed. The time spent as a larva is some two months, but this would be speeded up considerably given the temperatures in southern Spain in the summer months.

Larvae reared by Huertas Dionisio in 1979 took between five and eight weeks to feed up. In the wild the larvae are very difficult to find as they press themselves close to the branches of the foodplant. The cocoons are made of a soft silk and tend to be found at the base of the foodplant or in the forks of adjoining branches. Sometimes they can be discovered by searching surrounding vegetation. The imago, which emerges from its cocoon after four or five weeks, shows a marked sexual dimorphism. The male example is much smaller and more brightly marked in chestnut brown than the female. When at rest the moth also presses itself flush with the branches of "Retama", with the male leaving the tip of its abdomen protruding, looking for all the world like a dead leaf. I did not come across imagines in the wild state, but they would presumably be attracted (the males at least) to bright lights on the coast. Breeding the moth in captivity from cocoons is simplicity itself. The insects will pair in any suitable container, not requiring much space, the female laying her quota on the first night after pairing.

I would imagine that pairing would be easy also in Britain, as the nights in the early part of the year in Huelva are still cool, despite sunny days. The larvae, however, are not easy to rear. In the first two instars they should not cause any problems, as long as the foodplant given is dry. From the third instar the larvae start to die off unless given plenty of room and reasonably airy conditions. Despite what Friedrich (1986) says about Tamarisk being a better foodplant over the leguminous species, I did not find there to be any difference. I have not reared the species over a British winter, but would imagine that it would require extra heat. In any case, the larvae would certainly appreciate being given the opportunity to take advantage of that rare British phenomenon, sunlight.

Under no circumstances should foodplant be placed in water or for that matter should wet food be given.

The moth is not noted for its variation, but the following two forms have been noted: *roseoclar* (Schawerden 1928) and *tenebrosa* (Rothschild 1917).

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## DOR BEETLES, BADGERS, AND BOVINE TUBERCULOSIS

by M. Hancox

A study of badger diet based on 2,000 scats on the Wytham Estate near Oxford showed that Dor beetles (*Geotrupes* sp.) may be a significant item to some badger clans at certain times of the year. The majority of the Dor beetles belonged to the two species *G. stercorarius* and *G. spiniger*: 48% of each, but *G. stercorarius* comprised 3% and *G. mutator* 1% in a sample of 160 individuals identified down to species. There was no evidence of seasonal separation in frequency between the four species, but 397 beetles in 96 scats were eaten in different amounts by seven clans in every month except July.

Table 1. Percentage distribution of Dor beetles

Month	Jan	Feb	Mar	Apr	May	Jun	Aug	Sep	Oct	Nov	Dec
No. individuals	1.5	0.7	0.7	0.5	0.5	0.5	3.6	81	7	3	1
No. scats	5	3	3	2	2	2	13	33	23	11	3
Clan	A	B	C	D	E	F	G				
No. individuals	0.2	0.2	2	5	8	19	66				
No. scats	1	1	6	18	24	26	24				

This differing utilisation by the seven clans was clearly related to availability, as regards presence of cows on permanent pasture for differing periods of time, and the lack of such a resource from the primarily woodland range of clan A (Great Wood). Some 66 beetles were present in a scat during the autumn peak consumption period (Table 1).

Dor beetles are often cited as a route of infection from cattle to badgers, and in the 1930s when some 40% of cows had tuberculosis this seems probable. An earlier study noted 54% of cow pats with TB bacilli (Little, 1982), so that dung eating *Geotrupes* would present a real risk to badgers. Infection in badgers is primarily respiratory, but the initial

focus of disease within a clan could well be a badger with an open dental abscess, and such entry sites associated with broken or lost teeth occur in up to 6% of badgers (Hancox, 1988). Earthworms are also major decomposers of cow pats, and can passively transmit viable bacilli (Satchell, 1983). Comprising half the annual diet of badgers, worms may hence also be a critical infection route from cattle to badgers. It is however much less clear how badgers might infect cattle under field conditions, since the disease is primarily respiratory in cattle (Little, 1982).

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### BEHAVIOUR OF RED ADMIRALS AND HORNETS

by Stuart Pittman (9135)

The article on Purple hairstreaks and hornets by Brian Mitchell (*Bulletin* **50**: 280) was of particular interest as I witnessed the event. Whilst scanning the pages of older AES publications I came across a corresponding experience by Mr M.F. Gosling who further elaborates on the subject (*Bulletin* **19**: 86).

On a rotten elm stump one August day he observed a number of Red admirals flying and occasionally perching on ivy leaves. Their gregarious behaviour was in stark contrast to the avaricious hornets which chased the butterflies when they flew near the back of the stump. On investigation he discovered that the cause of the hornets' hostility was their proximity to their nest which was just visible in the ivy and decaying wood. He remarked that the Red admirals assembled as a result of the scent of honey from within the nest, or perhaps as a result of the less dangerous activity of sun-bathing on the warmth of the old stump.

(Editor's Note: Honey? In a hornets' nest? There is an account by the Rev. J.G. Wood on page 354 of the 1883 edition of his book *Insects at Home* which is also illustrated on a colour plate, of the dire fate of a Red admiral caught by the feet and jaws of a hornet. "In the open air the short-winged, heavy-bodied Hornet would have had no chance of catching the ample-winged butterfly. So the Hornet kept flying backwards and forwards in front of the butterfly, until the *Atalanta* thought to escape by flying through the branches of an elm tree. This was the object of the hornet's manoeuvres, for it at once dashed among the foliage, where the wide wings of the butterfly were at a disadvantage, captured the unfortunate *Atalanta*, bit off its head and wings and flew away with the body.")



**SPRING BUTTERFLIES OF THE SPANISH CENTRAL PYRENEES**

by A. Wakeham-Dawson, BSc, CBiol, MIBiol. (9379)

Groveside, Heron's Ghyll, Uckfield, Sussex TN22 4BY

I travelled down to Eriste, a small village near Benasque in the Spanish Central Pyrenees for a week between the 25th and 31st May 1991 in the hope of seeing some of the butterfly species that fly only in the spring. Benasque is at 1138 m, in a valley of the same name formed by the River Esera. I had hoped to spend a few days further south as well, but in the event only had time to record around Eriste. The village is at 1100 m (situated at the junction of the small Eriste river and the Esera) and being well above the divide between Western Europe and Mediterranean vegetation (Polunin and Smythies, 1973). I saw only those butterfly species associated with the Pyrenean climate rather than the more essentially Spanish spring species: for example Iolas blue (*Iolana iolas*), Spanish fritillary (*Eurodryas desfontainii*), Spanish festoon (*Zerynthia rumina*), Zephyr blue (*Plebejus pylaon hespericus*) and Sooty orange-tip (*Zegris eupheme*) — (Cribb, 1991 and personal communication). These I hope to see next spring with a visit to central Spain.

I had timed my visit just right more by luck than judgement and the snow that had been lying the week before had melted away leaving only the peaks of the mountains white. The weather was warm and sunny and produced a rich variety and abundance of butterfly species that was a delight to see. The agriculture is unintensive and consists of small dairy and sheep farms with many tiny grass and legume meadows around the Eriste Reservoir and on terraces up the lower slopes of the mountains. In the meadows closest to the reservoir I found Duke of Burgundy fritillaries (*Hemearis lucina*) laying on cowslip (*Primula elatior*), Meadow fritillaries (*Mellicta parthenoides*), and a variety of common whites and blues. These included Little blue (*Cupido minimus*) and Common blue (*Polyommatus icarus*). I also saw several Adonis blue (*Lysandra bellargus*) females flying around the trees at the edges of the meadows and caught one with very blue wings and extremely prominent orange submarginal lunules on hind and forewing upper surfaces (not unlike the form *ceronus* Esper described in Higgins and Riley, 1980). I had a fair degree of difficulty identifying this as I did not see any male Adonis blues until I had climbed to drier meadows on terraces about 100 m higher up. These were flying close to the ground and I saw no females. It could be that males and females show different flight patterns or that I failed to see the darker females when they were flying closer to the ground. The males were a beautiful electric blue and one of the specimens I took has prominent black dots on the margins of the upper hindwings. Later at Chia in a valley not far from Eriste I caught another blue female Adonis blue and it may be that this is the norm for first

brood females as with the population near Campo Real in central Spain described by Cribb (1991).

The meadows are lush close to the reservoir but with the exception of those near streams or irrigation channels become drier as they climb up the valley sides (1200 m) and here the meadows are sometimes only 5m across but support a wide range of plants and butterflies. I saw Clouded yellows (*Colias croceus*), Glanville (*Melitaea cinxia*), Provencal (*Mellicta deione*), and Weaver's (*Boloria dia*) fritillaries. Flying with the Adonis blues were Mazarine blues (*Cyaniris semiargus*) and I caught one male Turquoise blue (*Plebicula dorylas*).

The River Eriste flows into the reservoir by two routes; directly and via the turbines of a hydroelectric power station. The original river has cut a rocky and fairly arid valley down between the Pico de Eriste and a sister peak Tuca la Seca. Here the vegetation is more Mediterranean with oak and box scrub. I followed the path up this valley and encountered a large number of Southern orange-tips (*Anthocharis belia euphenoides*) flying with the Common orange-tip (*Anthocharis cardamines*) and all the Common whites and fritillaries previously listed. Here and on the grassy meadows I found a range of Skippers including Dingy (*Erynnis tages*), Tufted (*Carcharodus flocciferus*), Red underwing (*Spialia sertorius*), Oberthur's grizzled (*Pyrgus armoricanus*), Foulquier's grizzled (*P. foulquieri*) and Large grizzled (*P. alveus*) skippers. Gliding about were Swallowtails (*Papilio machaon*) Scarce swallowtails (*Iphiclides podalirius*) and flapping about slightly less graceful but very fresh Black-veined white (*Aporia crataegi*). The water was icy cold and very blue and just at the point where the oak scrub peters out to give scree is a waterfall about which were racing a good number of very battered Camberwell beauties (*Nymphalis antiopa*) which must have over-wintered as adults. There were also a number of *Gonepteryx* butterflies on the wing but whether they were Brimstones (*G. rhamni*), Cleopatras (*G. cleopatra*) or both species I do not know as they were flying through the area too fast to be seen clearly. I also saw ringlets on the scree slope but was unable to travel at any speed on the ankle-twisting material to make a more precise identification.

One of the finest sights on this walk was the shimmer of many hundreds of Green hairstreaks (*Callophrys rubi*) above the box scrub.

The next day I went up to some meadows (El Plans d'Abjo) across the reservoir valley from Eriste and a good 600 m above where I had collected the previous day. These meadows are just above the tree line at this point and there were plenty of Alpine plant species to be seen including the perfect and remarkable purple-blue of Spring gentian (*Gentiana verna*). From these meadows can be seen the magnificent

Maladeta ("Cursed") mountain range which includes the Pico de Anito, the highest mountain in the Pyrenees at 3404 m. Flying close to the ground were *E. tages*, *P. armoricanus* and Small heaths (*Coenonympha pamphilus*). Here I also found de Prunner's ringlet (*Erebia triaria*) with very dark underside hindwings and the obscure black transverse markings that distinguish them from the Piedmont ringlet (*E. meolans*) — See Higgins and Riley (1980). Little or nothing is known about the larval foodplants and I saw no oviposition as the butterflies were moving about at some rate in the breeze. The related species with known foodplants tend to feed on grasses. Despite the breeze there were several species on the wing including Queen of Spain fritillary (*Argynnis lathonia*), newly emerged Pearl-bordered fritillaries (*Boloria euphrosyne*) and Painted lady butterflies (*Cynthia cardui*).

Towards the end of the week the weather began to break and rain set in. Despite this I was able to see a few more species. In the Chia valley a few miles south of Eriste at about 1200 m I found Black-eyed blue (*Glaucopsyche melanops*) butterflies flying over *Echinopartum horrida* (= *Genista horrida*). Further south still at Graus I found Provence chalk-hill blue (*Lysandra hispana*) the only butterfly on the wing on a very sultry day and back at Eriste between rain showers I caught Green underside blues (*Glaucopsyche alexis*) flying over the wetter lucerne meadows.

These were the most interesting of the species and a comprehensive list of all species seen is given below. It seemed that at all the places I visited the Large wall brown (*Lasiommata maera*) was the most common butterfly in much the same way as the Marbled white (*Melanargia galathea lachesis*) had been in the eastern Pyrenees at Mosset in July 1990. In some respects I was a little disappointed with the visit as the weather had been unstable (perhaps only to be expected in the mountains in early spring) and because I had not had time to go further south. Anybody visiting this region to look at the remarkable butterflies, plants and birds should bear in mind that spring begins about a month later than lower down. Benasque is becoming quite a large skiing resort and it is hoped that the new valley road building projects and influx of tourists will not take place at the expense of the environment.

I hope to visit the Benasque region in July 1991 to record the summer flying butterfly species.

#### LIST OF SPECIES SEEN

<i>Aglais urticae</i>	Small tortoiseshell
<i>Anthocharis cardamines</i>	Common orange-tip
<i>A. belia euphenoides</i>	Southern orange-tip
<i>Aporia crataegi</i>	Black-veined white
<i>Callophrys rubi</i>	Green hairstreak

<i>Carcharodus flocciferus</i>	Tufted skipper
<i>Boloria euphrosyne</i>	Pearl-bordered fritillary
<i>B. dia</i>	Weaver's fritillary
<i>Coenonympha pamphilus</i>	Small heath
<i>Cupido minimus</i>	Little blue
<i>Cynthia cardui</i>	Painted lady
<i>Cyaniris semiargus</i>	Mazarine blue
<i>Erebia triaria</i>	de Prunner's ringlet
<i>Erynnis tages</i>	Dingy skipper
<i>Gonepteryx cleopatra</i>	Cleopatra
<i>G. rhamni</i>	Brimstone
<i>Glaucopsyche melanops</i>	Black-eyed blue
<i>G. alexis</i>	Green-underside blue
<i>Hamearis lucina</i>	Duke of Burgundy
<i>Iphiclide podalirius</i>	Scarce swallowtail
<i>Argynnis lathonia</i>	Queen of Spain fritillary
<i>Lasiommata maera</i>	Large wall brown
<i>L. megera</i>	Wall brown
<i>Leptidea sinapis</i>	Wood white
<i>Lysandra bellargus</i>	Adonis blue
<i>L. coridon</i>	Chalk-hill blue
<i>Mellitaea cinxia</i>	Glanville fritillary
<i>Mellicta deione</i>	Provençal fritillary
<i>M. parthenoides</i>	Meadow fritillary
<i>Nymphalis antiopa</i>	Camberwell beauty
<i>Papilio machaon</i>	Swallowtail
<i>Pararge aegeria aegeria</i>	Speckled wood
<i>Pieris rapae</i>	Small white
<i>P. napi</i>	Green-veined white
<i>Plebicula dorylas</i>	Turquoise blue
<i>Polyommatus icarus</i>	Common blue
<i>Pyrgus alveus</i>	Large grizzled skipper
<i>P. armoricanus</i>	Oberthur's grizzled skipper
<i>P. foulquieri</i>	Foulquier's grizzled skipper
<i>Spialia sertorius</i>	Red underwing skipper
<i>Vanessa atalanta</i>	Red admiral

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#### LETTERS TO THE EDITOR

Dear Brian,

After reading a number of rather exasperating letters in the *Bulletin* on the conservation and collecting issue it was a considerable relief to read the more moderate and rational contributions from Messrs Tebbutt and Tennent.

It is surely beyond argument now that destruction and degradation of habitat are far and away the biggest threats to butterflies (and the silent majority of other insects) in the country at present but that irresponsible collecting can have a role to play once a species has reached the point of vulnerability at a particular site.

Those who have visited the sites of the Schedule I species *Papilio machaon* (Swallowtail) or *Mellicta athalia* (Heath fritillary) will know the large numbers which occur where the habitat is properly safeguarded and maintained (naturally or artificially) to the species' requirements once these are known. If collecting of, for example, the Schedule II species *Plebejus argus* (Silver-studded blue) were banned it would not have stopped a housing estate from being built on Martlesham Heath. Lobbying the Secretary of State by the concerted action of interested parties, perhaps including collectors, did, however, save Canford Heath.

The task is to ascertain the distribution, requirements and threats to rare or vulnerable species through proper research and act upon the results through agreement. I am convinced that sufficient, even broad, common ground can and does exist between responsible collecting and effective conservation but there is no place for the division caused by extreme views of either persuasion. Such division can only be exploited by those who would destroy habitats and collectors, conservationists and insects will all lose. Does anyone really want to see that?

Yours sincerely, Pete Holdaway (4267)

Dear Editor,

It does seem that it is the poor old entomologist who would just like to catch a few butterflies and study them who gets castigated and legislated against for being a naturalist, whereas the real culprits are themselves protected species. I refer to the birds and the bats. During a year an insectivore will require from a quarter to half a million insects to sustain it and its offspring. Assuming 20,000 British insect species of which 70 are butterflies, then they are .35% of the total. Take a medium figure for the predators eating 375,000, then 1,312 butterflies will be eaten per year per insectivore. Does anyone even argue that your average "collector" catches that number in a year? I think not. While perhaps the bats, being crepuscular and nocturnal devastate the moths rather than the butterflies they must also be taking their fair share of "protected" species. I have often seen birds swoop on passing butterflies and one thing that strikes me in countries such as Italy, Malta, Greece, is the abundance of butterflies and the scarcity of birds which are considered fair game by the local population. Although I doubt it can ever be proved, one way or the other, it seems to me, on reading accounts of the sheer abundance of butterflies in the 19th century, when books on birds-nesting were in every

boy's pocket and their elders were shooting every bird species on sight according to the same accounts, that the butterflies' decline began and then accelerated, as the various Acts for the protection of birds came into effect, making it illegal to collect their eggs, shoot them or even disturb them on the nest. It is of course easier and more politically acceptable, since he is in the minority, to blame the entomologist, but legislation which removes a predator from one group of animals, known to feed on another, is bound to upset the balance of nature and can have unforeseen results.

Yours sincerely, Edward Morrison

Dear Brian,

### **AN AMATEUR ENTOMOLOGIST SHOOTS FROM THE HIP**

The AES *Bulletin*, Vol. 51, No. 381, provided us with a number of interesting "Letters to the Editor". W.J. Tennent, with whose views I totally agree, should not worry about the "resounding silence" from AES members regarding the plans of others to crack down on the collecting, etc, of British butterflies which has serious undertones for entomology in general. There is a "resounding silence" only because most entomologists have better things to do than try to educate those who will not change their view on any subject and do not want to listen to anyone who is not "an expert". We have an old appropriate saying in Yorkshire — "Convince a fool against his will, he'll have the same opinion still."

I know, from my own experience, that you have to collect insects to learn about them, to understand them and to know how they live and what their habitat requirements are. There is a huge entomological world out there once one moves away from butterflies, but they are an important first stepping stone for so many entomologists who become "hooked" and move on to other less well studied groups to do vital work that enhances our knowledge of our fauna. I am not a breeder or dealer and have a small representative collection of British butterflies already so I am not much affected by the plans of the correctly identified "ill informed", but what about future entomologists? Yes, what about the children? Are we going to "remove the first stepping stone" and bring them up in ignorance assuming every thing is known about all insects and deny them the chance to embark on a journey that leads to a real awareness of all insects and a gain of knowledge that can be and is used to protect what is really vital to their needs?

Let me remind so-called "conservationists" that it is because of the work of past and present entomologists that they have a reasonable knowledge, which can never be truly complete, of our insect fauna. We have given them a stick with which to beat us and they are using it. I contribute many records to a number of societies and recording schemes and fear that once any insect group becomes sorted out scientifically and their distribution and requirements known then it is likely that those in power will turn round to entomologists and say "You have given us all the information that we need, now there is no need to collect and study this group so we will introduce a collecting ban". If you think this is nonsense then the present ban-butterfly-collecting farce proves beyond doubt that it is the sad truth. They want you only so long as you are useful to them after which point you are discarded and your activities stopped.

My view is that collecting/studying insects has been highly beneficial to them, as species, as it has led to an appreciation of their needs and the preservation of some of their habitats with many active collectors being responsible for identifying important parts of sites and helping to save them from "destruction".

I was alarmed by the letter from the Director of Butterfly Conservation, some of whose views are highly questionable, and whose organisation will be regarded as a wolf in sheep's clothing by most if not all AES members. The view of Butterfly Conservation is quite clear. They want a total ban on any collecting of, sale of and breeding of, any British list butterfly which will lead to no doubt partial bans for other groups. They also will let you, perhaps, have a licence to breed but only for release into the wild. If Butterfly Conservation expect entomologists to join them after making their objectives that clear then they should have given their address as Cloud Cuckoo Land. I wonder what other entomologists think of Butterfly Conservation's proposed definitive policy document on the collecting, breeding and sale of butterflies? Do you believe it will open with the words "We owe a great deal to the work of both past and present entomologists"? Not on your nelly! I'll wager that it will be a dangerous piece of inaccurate propaganda designed to alienate the average members of Butterfly Conservation against entomologists and influence those in power. Remember that the average butterfly enthusiast is one that is a member of the "butterfly bush brigade", has never done much, if any, fieldwork, and is highly gullible to what he or she is told by leaders or spokespersons from such "respectable" organisations as Butterfly Conservation, RSPB and WWF. AES members can do without being highly criticised by such people as these types of "experts" in print, for the easily influenced naturalist to read.

I must refute the so-called “fact” that collectors are a “fourth force” behind the destruction of butterfly colonies/numbers. This is absolute nonsense. Since 1975 I must have spent at least a hundred days visiting sites which contain at least one of the “22” species and I have never, not once, encountered another entomologist in the field who was engaged in collecting butterflies. We all know that there are more collectors of butterflies than any other group of insects. We also all know that there are some species in Britain such as *Mellicta athalia* (Heath fritillary) that are restricted to very few sites. If all the collectors were to converge on all of the sites for this species and then proceed to collect all the adults day after day, then we all know that this would lead to a drop in numbers, but it would be practically impossible to exterminate a species from a site by collecting alone, as was proved by the *Hipparchia semele* (Grayling) “experiment”. I suppose collectors exterminated *Aporia crataegi* (Black-veined white)! The fourth force is, of course, the “natural factors” of predation by birds, spiders etc, changes in climate, parasites, disease and habitat alteration due to natural factors such as the gradual drying out of wet sites and the gradual “shading out” of more open ones for example. None of us wants to see species such as *M. athalia* extinct in Britain. The logical thing to do was to allow breeders to “flood the market” with bred specimens of species such as this thereby satisfying the collectors who wished to have them represented in their collections and relieving any pressure, real or imaginary, on wild stocks. Remember that some breeders are only too happy to release surplus stock back into suitable “wild” habitats.

We now have a lot of “daft” laws that AES *Bulletin* writers can have a field day pulling to bits and which appear to be trying to put the fire out by pouring petrol on it, so to speak.

May I congratulate Mark Hope for putting the boot into RSPB and WWF. Isn't it about time that we regarded them with as much disdain as they regard us? How can we be expected to look up to people who think butterflies, dragonflies and bumblebees are insects and the rest merely fodder for their beloved birds and animals? Open your eyes and do not “manage” your acquired land for the large and spectacular only.

Am I alone in thinking that people and groups operating under the banner of “conservation” are often misguided and ill-informed and often do a lot of damage to good natural habitats by destruction that is publicised as “creation”? Here are a few examples. An elderly couple “created” a “wildlife garden” at Helmsley according to our local paper. What they really did was get a contractor to absolutely destroy a habitat that had been left alone for forty years. They really destroyed a wildlife garden. Also locally a “conservation group” created a pond — by destroying an interesting marshy area. A “conservation group” at York



decided to "clean out" a dyke, that was an entomologist's jewel, with negative results — they could not see what they were destroying. Councils are also keen to jump on the green bandwagon and time and time again they approve of "tidying up" projects which destroy vegetation around interesting ponds making them fit only for tame ducks and destroy good, so-called "eyesores", waste land habitats, by making them into lawns complete with picnic tables to look nice for the gullible general public. "Conservationists" sometimes also consider disused quarries to be "eyesores" that should be filled in. As we all know, these places are important wildlife habitats. I suppose the underlying message is that entomologists and the wide range of insects that they come to love and care about are under threat from all these false prophets. No-one is innocent but some are more guilty than others and the finger that others point at us should be directed towards the real issue of maintaining a variety of habitats for insects to exploit.

From my own experience with people then, I know that at least 50% of them could not give two hoots about insects or their habitats, or entomologists. Most of the rest of them are willing to listen to entomologists and are interested when one tries to educate them on any aspect of this subject of which they have little grasp. Unfortunately it seems that the influential "stop this, ban that" group have got themselves into a position where they can make the entomologist an outcast through their constant propaganda war which up to now has been so idiotic that as W.J. Tennent says, it has been met with a "resounding silence" from entomologists themselves. We must fight back. We must write vitriolic letters about them, exposing them for the hypocrites they are. I feel a lot better for getting the above sentiments off my chest and onto paper. There is already too much "red tape" working against entomologists. Isn't it time that common sense prevailed and most if not all of it was scrapped?

Yours sincerely, A. Grayson (8621)

(This subject has now, I feel, been given a sufficient airing in the pages of the *Bulletin*. All views expressed have been those of the authors concerned and do not represent those of the Society in general nor its Council.— Editor)

## OXFORD UNIVERSITY PRESS BOOKS

Recently published by this famous press are two books which make a significant contribution to the entomological literature. They are:-

*The Butterflies of Kenya* by Torben B. Larsen.

This is the first comprehensive guide to the butterflies of any African state and does the subject proud, is illustrated with 64 colour plates and is from the word processor of a well known entomologist and author. A well-bound hardback in cloth, the price is £85.

*Insects of Panama and Mesoamerica: selected studies.* Edited by Diomedes Quintero and Annette Aiello.

When most of us think of Central America it is, I believe, the image of colourful butterflies that comes to mind. This large quarto volume of nearly 700 pages concentrates on the other orders of insects, which are both more numerous and just as fascinating in their own way. The subject is dealt with by various experts in their field and ranges from Embiids through Zoraptera to nocturnal butterflies. The price is £95.

Your editor has been promised a full review of these two books in due course.

### **PRACTICAL HINT — CHALKHILL BLUE FOODPLANT**

*by Richard Revels (3942)*

Although crown vetch (*Coronilla varia*) has been mentioned as an alternative foodplant to horseshoe vetch (*Hippocrepis comosa*) for Chalkhill blue (*Lysandra coridon*) larvae, I have been told that the larvae do not flourish well on it. The only alternative food for *coridon* larvae that I have found to be successful was garden peas. I have successfully fed these larvae on peas, by extracting the peas from the pod and placing both peas and larvae in small plastic containers.

### **SILVER-Y MOTH RECORDS WANTED**

Here at the Institute of Virology we are considering the start of a large ecological project looking at the impact of an insect-specific baculovirus on populations of that noted migrant, the Silver-Y moth (*Autographa gamma*).

Before this can begin we require two things; first, a knowledge of the best locations to find adults and larvae, and second, light-trapped moths from which we can rear contaminated (infected) offspring. If interested members of your readership in southern and central Britain could send me light-trap records for the past few years, the optimal sites should soon become apparent and I would be extremely grateful. If they could also indicate their willingness to provide us with adults (or eggs) for rearing, that would be even better. We would be happy to reimburse the cost of postage, etc.

This project should prove highly significant in furthering our understanding of insect virus population dynamics and I should like to thank AES members for their interest and any assistance then can give.— Dr Trevor Williams, Institute of Virology and Environmental Microbiology, Mansfield Road, Oxford OX1 3SR.

## 1991 — A LATE AND POOR SEASON

by Roger Hayward (2769)

16 Gilmore Close, Slough, Berkshire SL3 7BD

I imagine that most if not all of us who collect British macro-moths will have found 1991 a late and disappointing season. To illustrate the point I am hoping our editor will allow me space to set out a record, based on three twelve week periods, of all this season's captures at my static traps.

My garden on the east side of Slough is not a good trapping site, even though it adjoins the extensive grounds of a local convent. These grounds contain a small burial ground, tennis courts, neglected hedgerows (now mainly of sucker elm) and much rough grazing. The garden itself is overlooked on the west side by a large oak tree, the lower leaves of which are covered with honeydew and a powdery white mildew after about May. The west side is bounded by an overgrown hedge of mainly elder, elm and sycamore: the house to the south has a ten foot tall cypress hedge, while the house to the north has an untrimmed cypress hedge at present about twenty feet tall. Too small to contain wild areas, my garden is like most of the others on the estate; being about eighteen years old, closely manicured and largely sterile entomologically.

As the garden is overlooked on three sides by other houses, I am compelled to site the Robinson trap in a far-from-ideal position, where it casts its light over an arc of only some 220°. It is within four feet of the west-facing wall of the house on which a large proportion of the more interesting, and particularly the smallest species are found at rest. There are of course no similar constraints on the siting of the Heath trap, with its actinic tube.

Because of the need for early starts, the trap is not run on nights prior to daily commuting trips to London. This generally means trapping is confined to holidays at home and to weekends. Between October 1977 and December 1990 my garden had produced 19 species of butterflies and only 230 species of macro-moth; a dismal record.

Trapping usually starts at the end of January, but the year's particularly adverse early season bred lethargy fed by poor expectations. The first trapping session of 1991 was therefore not until the night of 9/10th March. Both traps were run in the garden and Sunday morning found one each of *O. cerasi* (Common quaker) and *O. gothica* (Hebrew character) in the Heath trap, plus an *E. transversa* (The Satellite) hiding beneath it.

An MV bulb can usually be relied on to attract a substantially larger catch than an actinic tube, but on this preliminary essay the opposite was the case. It came as a great surprise to discover that the Robinson trap contained no moths. It was, however, host to a fine *Geotrupes stercorarius* (Wood dor beetle) and a couple of horrid ichneumons.

Table 1

Table 1	MAR		APRIL							MAY							JUNE												
	30	31	5	6	12	13	22	23	24	25	26	27	3	4	10	11	12	17	19	24	25	26	27	31	1	7	8	14	15
<i>H. lupulinus</i> Common swift																					1	3	1		-	-	-		
<i>X. fluctuata</i> Garden carpet															-	-					1		-		1				
<i>A. badiata</i> Shoulder stripe	-		-																										
<i>A. derivata</i> The streamer	1		1																										
<i>C. truncata</i> Common marbled carpet																											1	-	
<i>E. centaureata</i> Lime-speck pug																					1	1	1						
<i>E. abbreviata</i> Brindled pug																													
<i>E. dodoneata</i> Oak-tree pug																													
<i>G. rufifasciata</i> Double-striped pug																													
<i>A. virescens</i> Yellow-barred brindle																													
<i>O. luteolata</i> Brimstone moth																													
<i>L. hirtaria</i> Brindled beauty	-	2	2	-																									
<i>S. ocellata</i> Eyed hawkmoth	1	-	-	1																									
<i>S. lubricipeda</i> White ermine																													
<i>D. mendica</i> Muslin moth																													
<i>N. confusalis</i> Least black arches																													
<i>A. segetum</i> Turnip moth																													
<i>A. exclamatoris</i> Heart & dart																													
<i>A. puta</i> Shuttle-shaped dart																													

	MAR	APRIL										MAY										JUNE						
	30:31	5	6	12	13	22	23	24	25	26	27	3	4	10	11	12	17	19	24	25	26	27	31	1	7	8	14	15
<i>X. c-nigrum</i> Setaceous hebrew character																	—				1		—	—	—	—		
																	1				—		1	1	2	3		
<i>L. oleracea</i> Bright-line brown-eye																							1					
																							—					
<i>O. cruda</i> Small quaker	— 2																											
<i>O. cerasi</i> Common quaker	1 — 2 2	1	—	—			1	1																				
		1		2			1	—																				
<i>O. incerta</i> Clouded drab	1 1 — —	1	—	1	2					—		—																
		—	—	2	—					1		1																
<i>O. gothica</i> Hebrew character	6 2 2 4	2	3	3	13	3	3	3	2	2	2	1	2	1	4													
		1	2	8		4	3	4	4	2	4	3	3	—	1													
<i>X. areola</i> Early grey	1 — 3 1				1			2	—	—		—	—	—			1	—										
								2	1	1		1	1	1			—	1										
<i>C. rubiginea</i> Dotted chestnut	— 1																											
<i>P. meticulosa</i> Angle shades												—	—							1			—					
												1	1										1					
<i>A. monoglypha</i> Dark arches																									—	1		
<i>O. Strigillis</i> Marbled minor																								1			—	
																								1			1	
<i>O. lactruncula</i> Tawny marbled minor																												
<i>O. fasciuncula</i> Middle-barred minor																									—	—		
																									2	1		
<i>C. trigrammica</i> Treble lines																								—				
																								1				
<i>H. blanda</i> The rustic																									—	—		
																									1	3		
<i>H. ambigua</i> Vine's rustic																				1	2		1	8	2	2	3	
																					1		4	14	26	24	10	
<i>C. clavipalpis</i> Pale mottled willow				1				—	—	—		—			1	—	1	3	1	—			4	4	—	—		
				—				1	1	1		1			1	1				2			1	2	2	2		
<i>C. coryli</i> Nut-tree tussock													—	—														
													1	1														
<i>A. triplasia</i> The spectacle																					—							
																					1							

Circumstances prevented further moth-trapping until the Easter weekend at the end of March, when the regular sampling tabulated in this article commenced. On a few nights the Robinson trap was run at an alternative site a couple of miles from my home. On a few other occasions, when the weather seemed unpromising, the traps were not run. The evening of Good Friday was uninviting but the Saturday (30th March) saw a slight improvement, and both traps were run. Sunday morning found five species of macros in the Heath trap (ten specimens), with six in the big trap (eleven specimens). Of the latter, three species had not appeared in the Heath trap and one of these, a female *A. badiata* (Shoulder stripe), was an addition to my garden list. Although the weather turned colder the following evening, both traps were again run. As expected, the catch awaiting me on April Fools' Day was smaller, with only three species (five specimens) in the Heath trap. There were only four species/eight moths in the Robinson trap, but one of these was an unexpected prize — a female *C. rubiginea* (Dotted chestnut), my first ever. Unfortunately, she did not oblige with eggs, although kept alive for several days.

I was not able to light the traps until 22.45 on the 12th, but was nevertheless rewarded next morning with a male *A. derivata* (Streamer), the first in my garden. In view of the lateness of the season, singletons of *E. dodoneata* (Oak-tree pug) and *C. clavipalpis* (Pale mottled willow), the latter hiding underneath the small trap, seemed surprisingly early.

For the whole of the spring period my diary contains frequent notes such as "very cold", "cold and clear", "frost tonight", or "v.v. cold", and so there were a number of weekend nights when the traps were not run. Even when they were, catches were small or even nil. Gradually, however, the late-spring species appeared, albeit in penny numbers, eg *O. luteolata* (Brimstone moth) on the 24th and *D. mendica* (Muslin moth) on the 25th, although the cold weather did not ease until the first week of May.

Early May was, perhaps not surprisingly, disappointing. Even on the morning of the 11th, when the Robinson trap produced the first of the tiny *N. confusalis* (Least black arches), which turns up every year, and *C. coryli* (Nut tree tussock) — which is always scarce, they were among only seven species and ten moths, three of them *E. dodoneata*. The small trap contained only a single *O. gothica*. However, spring must have arrived, as I heard a cuckoo when emptying the traps and later in the day saw females of both the common and Lesser stag beetle walking around the garden.

Unusually, I was able to run the traps on the night of Sunday 12th May, but I need hardly have bothered. There was but a single micro in

the Heath trap, with one *X. fluctuata* (Garden carpet), one *E. dodoneata* and a caddis fly in the large trap: an indication of just how cold the weather had remained.

The morning of the 19th produced no moths in the small trap, but daytime sunshine did attract an *A. cardamines* (Orange-tip) to the garden. The centre of Slough is not noted for its wealth of butterflies, but the early part of 1991 was particularly poor. Last year the first *C. argiolus* (Holly blue) appeared on 31st March, but it was 12th May before any butterflies were seen this year. On that sunny Sunday the Holly blue, Large white (*P. brassicae*) and Orange-tip all graced my small garden with their elegant presence. This spring was unique in that not a single hibernated butterfly was seen here. On four nights at the end of May I ran the large trap at the alternative site, but its absence from my garden produced no upturn in the number of captures at the Heath trap, proving that the two lights (run within 20 feet of each other) do not compete for visitors. In fact, on the night of 31st May/1st June the Heath trap was again empty! The Robinson trap at the alternative site contained only five moths due perhaps to the wet weather.

A rise in average night temperature in early June saw a corresponding and welcome increase in the number of moths caught in the two traps, with 59 specimens of twelve species on the night of the 7th/8th, the best night of the twelve week period, of which twelve were *H. ambigua* (Vine's rustic). This dull species vied with *O. gothica* for the title of commonest moth during the survey period and, as there are two or three more broods each year, would soon overtake it. Coinciding with the hatching of large numbers of *H. ambigua* was the start of large-scale appearances of Stag beetles, although there was a lower proportion of females (which in most years outnumber the males 2:1) this year. The males are an impressive sight on the wing, at about half an hour before sunset, cruising slowly around with their heavy bodies hanging down almost vertically. On the same night one of this year's very few Hawk moths, a male *S. ocellata* (Eyed hawk) visited my traps, a welcome reappearance of this species after an absence of several years. In this area, where there is no sallow, they feed on decorative weeping willows in people's gardens.

Towards the end of the recording period the first specimens of those pest species *A. exclamatoris* (Heart and dart) and *A. monoglypha* (Dark arches) appeared. On the other hand, unlike last year, no *A. tipuliformis* (Currant clearwing) had hatched from my red currant bushes by mid-June.

The next report will cover the twelve week period ending 8th September. There will surely have been a change in my entomological fortunes by then!

		Ap	May				
		13	24	25	26	31	
<i>H. lupulinus</i>	Common swift		2	1	3	3	
<i>C. punctaria</i>	Maiden's blush			1			
<i>X. designata</i>	Flame carpet		1	1			
<i>H. impluviata</i>	May highflyer		1	1	2		
<i>P. flavofasciata</i>	Sandy carpet			1			
<i>E. dodoneata</i>	Oak-tree pug		1				
<i>L. halterata</i>	The seraphim			2			
<i>O. luteolata</i>	Brimstone moth				1		
<i>L. hirtaria</i>	Brindled beauty	2					
<i>L. populi</i>	Poplar hawkmoth		2	3	4		
<i>D. ruficornis</i>	Lunar marbled brown	3					
<i>D. mendica</i>	Muslin moth		3		1		
<i>A. puta</i>	Shuttle-shaped dart			1		1	
<i>O. plecta</i>	Flame shoulder		1	1	1		
<i>L. thalassina</i>	Pale-shouldered brocade					1	
<i>O. cruda</i>	Small quaker	1					
<i>O. cerasi</i>	Common quaker	7					
<i>O. incerta</i>	Clouded drab	3					
<i>O. gothica</i>	Hebrew character	15	1	1			

Table 1 on pages 174-175 shows catches in the Heath trap (against proper names) and Robinson trap (against colloquial names) in my garden in Slough.

Table 2. Catches in the Robinson trap at an alternative site in East Slough.

In Table 1 the totals against the scientific names are from the Heath trap and those against the colloquial names are the totals from the Robinson trap. Records of the five nights collecting with the Robinson trap at the alternative site are shown separately in Table 2.

(to be continued.)

## BOOK REVIEW

*The Butterflies of Britain and Ireland* by Jeremy Thomas and Richard Lewington. Hardback square quarto, pp 224, numerous coloured illustrations. Published by Dorling Kindersley and The National Trust, 1991. Price £16.99.

I can still recall the thrill of first seeing Frohawk's two volume work on British Butterflies. A similar excitement was experienced when reviewing the *Butterflies of Britain and Ireland*. Both books are written and illustrated with a love of the subject.

The present volume covers all the butterflies breeding and migrating to these islands. The text describing biology, ecology, history and conservation is expertly written and a joy to read. The illustrations showing eggs, larvae, pupae and adults are superb, especially nice to see are adult butterflies in natural situations.

With so many books on butterflies to choose from I would suggest that you look no further than this volume. A wonderful book.



## FOODPLANTS OF HOLLY BLUE AND ORANGE-TIP

by Douglas Goddard

County butterfly recorder, Northants Wildlife Trust & Beds & Northants Branch, Butterfly Conservation.

In response to the articles by P.J.C. Russell (*Bulletin* 50: 105) and P.W. Cribb (*Bulletin* 50: 106) on alternative foodplants, I offer my own observations from 1991 on unusual choices of foodplants by the Holly blue (*Celastrina argiolus*) and Orange-tip (*Anthocharis cardamines*) butterflies.

In the early evening of 12th May, my attention was drawn to a Holly blue frequently settling on the flower buds of Portugal laurel (*Prunus lusitanica*) in my garden. Closer examination revealed that it was ovipositing. Three ova were laid, two of which were in very prominent positions on the main flowerstalks, and a third far less conspicuous amid closed buds near the tip of the flowerhead. This one was the only one which hatched, the others falling victim to a predator. It did so on 23rd May, when the tiny larva was noted on a flowerstalk beside the empty eggcase.

I assumed that this larva had been eaten or died, since periodic searches failed to reveal its presence. However, on 5th June, I again discovered it on the same flowerhead. By 2nd July, it was fully grown, having fed on the maturing flowerbuds, and during the course of the day, it disappeared. I assume it to have pupated and the foodplant to have been successful. (Certainly the laurel became a favourite perching post for second brood Holly blues a few weeks later.) I had also been charting the progress of two other larvae on a small holly bush also in my garden. From ova which had hatched at roughly the same time, two fully grown larvae also left the foodplant on the same day. One of them was seen crawling around on the soil below the holly bush and took up residence for the night under a small clod of earth. The next morning after heavy rain it was half buried and difficult to find. I marked the spot with a small stone, under which the larva then chose to pupate. Pupation was complete by 6th July. The pupa was then removed indoors and a male Holly blue emerged overnight on 19th/20th July.

Member P.W. Cribb notes alternative foodplants only for the second brood Holly blues, but as well as the above, I also observed the species ovipositing on dogwood, *Cornus sanguineum*, in Northamptonshire this spring on a site lacking the normal foodplants and where it had been common the previous years.

The other species which interested me this year was the Orange-tip, since I observed ova or larvae on seven different plants. The most popular were garlic mustard (*Alliaria petiolata*), a cuckooflower

(*Cardamine pratensis*) and hedge mustard (*Sisymbrium officinale*), all of which I have seen used successfully in previous years, as has oilseed rape which was also noted with ova and larvae this year. The others were tower mustard (*Turritis glabra*), with first instar larva, bastard cabbage (*Rapiscum orientale*), with third instar larvae, and shepherd's purse (*Capsella bursa-pastoris*) on which I observed ovipositing. The last of these was unsuccessful on this occasion as the ova were eaten by predators on one site and the plant fell victim to mowing on a second. I would be very interested to know of any recorded successes for the Orange-tip on shepherd's purse.

### PRIVET HAWKMOTH LARVAE FEEDING ON HONEYSUCKLE

by R. S. Andrews (8970)

On 7th September 1991 I was moving pots of foodplant which had been standing in the shade of a large rambling honeysuckle (*Lonicera japonica*) when I noticed there was a lot of frass on and around the pots. A search of the bush revealed two fully grown larvae of the Privet hawkmoth (*Sphinx ligustri*)

From the amount of frass on the ground and the amount of foliage that had been eaten, there had been more than the two larvae that I found. There is a perfectly good and uncut privet hedge just twenty yards from this honeysuckle.

### THE MV LIGHT AND MEDICAL PROBLEMS

by Mike Halpin (9557)

158 Penhill Road, Bexley, Kent DA5 3EA.

I have had a mild type of skin cancer (Reudent ulcer) removed from my face by radiotherapy and have been told that it is unusual for somebody of my age to have this problem. Furthermore I was advised to wear a hat and use high factor cream when going out in the sun or the problem would re-occur. I wondered if any doctor members could advise if ultra-violet from my moth light could also put me at risk?

Still with MV lights, I wonder what the risks to eyesight are? *A Lepidopterist's Handbook* mentions the risks if the envelope cracks or falls off but in *A Field Guide in Colour to Butterflies and Moths* by Ivo Novak, it is advised to wear protective goggles and use anti-sunburn oil. I am in my mid-forties now and like a lot of people my age, the eyes begin to be not so effective for close-up work as they were. Can our eyesight be affected and if so what goggles or glasses are advised? I am also in the process of buying a pair of black UV tubes for use with a camping light and wonder if the risks are the same with that? I would be very grateful for advice.

## ADDITIONAL RECORDS OF THE CRIMSON-SPECKLED FROM MALTA

by Paul Sammut and Aldo Catania

"Fawkner 2", Dingli Road, Rabat, Malta, & Plot 135, Pembroke, St Julians, Malta.

Is the Crimson speckled, *Utetheisa pulchella*, (named "Farfett tal-Ghobbejra" here) re-establishing itself in Malta again after a lapse of about 18 years?

A single specimen was observed about mid-October in 1987 at Cirkewwa (Valletta, 1988) and a further four specimens were observed on 4th November 1990 at Siggiewi (Dandria, 1990).

About a month prior to this last record one of us (PMS) recorded 25 specimens of *U. pulchella* from an uncultivated field in Rabat and subsequent days yielded further specimens to a total of 60, all in perfect condition indicating fresh emergence. At about the same time further specimens were recorded (AC) from St Paul's Bay, Pembroke and Marfa, always in the vicinity of the larval foodplant *Heliotropium europaeum* (heliotrope or "Ghobbejra" in Maltese).

One gravid female collected from Rabat and another from St Paul's Bay started laying on the 9th October. A total of 85 eggs were laid and by the 12th these started hatching. The first pupae appeared on the 26th and adults started emerging on 2nd November with the last emerging on the 12th. A total of 72 imagines were obtained.

In 1991 the moth was again recorded from the previous localities and also from the Hagar Qim/Mnajdra area (S. Cortis, pers. comm.), Rdum tal-Madonna at Ahrax Point and Fawwara. At the time of writing (October 1991), the numerous larvae have just started to pupate.

It appears that this beautiful day-flying Arctiid moth is successfully re-establishing itself again in Malta. Foodplant, especially for the first and second brood, is not a problem. The only problem is its ability to overwinter (mild winters can be a problem to hibernating larvae) and its ability to utilise alternative foodplant when the heliotrope is not around.

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## BOOKS NOTICED

by The Editor

*Butterflies of the Bulolo-Wau Valley* by Michael Parsons.

Paperback. 8vo, pp 262, illustrated. ISBN 0-930897-61-7. Handbook No. 12 of the Wau Ecology Institute. Available from Bishop Museum Press, P.O. Box 19000-A, Honolulu, Hawaii 96817. Price \$34.95 plus \$2 postage.

This convenient field guide, lavishly illustrated with colour photographs, is the first modern book on butterflies of Papua New Guinea. It describes and illustrates all 373 butterfly species in the Bulolo-Wau Valley, home to about two thirds of mainland Papua New Guinea's butterflies.

The result of long years of research, it will prove useful to both amateurs and professionals. Succinct yet thorough introductory chapters review biogeography, conservation ecology, economic importance, and identification.

Eighty percent of the species are illustrated in colour, including the spectacular birdwing butterflies (*Ornithoptera*), and detailed drawings highlight important features of the different species. The book, the latest in the Wau Ecology Institute series of handbooks, includes a convenient summary checklist of species and many new foodplant records.

In representing so much original information on habits, habitats and larval hosts, this work makes a highly significant contribution to the otherwise scanty knowledge of the biology of the butterflies of the region.

Michael Parsons has researched Papua New Guinea's butterflies for more than twenty years, and has written numerous papers on their ecology and taxonomy. He is consultant to the World Wildlife Fund, and Conservation International.

*Learning about Butterflies* by Carolyn Klass and Robert Dirig. Pp 36, illustrated, coloured covers and centrespread. A Cornell Cooperative Extension Publication (4-H Member/Leader Guide 139-M-9). Available from:- Resource Centre, 7-8 Business and Technology Park, Cornell University, Ithaca, NY 148950, USA. Price \$6.25.

The authors approach butterflies of the Northeast from an inquiring perspective, prompting the reader with questions, some answered and some open-ended. Chapters on butterfly anatomy and life history provide basic information on these beautiful small animals, and a third chapter summarises their habitats, ecology and behaviour. A fourth part on butterfly conservation includes a section on gardening to attract butterflies, amplified by appendices listing larval foodplants and nectar

sources. A section on "Suggested Projects for Personal Discovery" indicates many aspects of butterfly study that need further investigation in the Northeast. A chapter on references and resources directs the reader to sources of further information. A list of the 151 New York State butterflies give brood and residency status codes, and includes eight butterflies new to the state since Shapiro's 1974 list. Numerous illustrations amplify the text.

Carolyn Klass is Senior Extension Associate in the Department of Entomology, and Robert Dirig is Assistant Curator of the Bailey Hortorium Herbarium, at Cornell University. Both studied entomology as undergraduates at Cornell's College of Agriculture and Life Sciences, and have observed and collected butterflies throughout the Northeast for many years.

For those interested in the Notodontidae, Supplement No. 11 of the *Nachrichten des entomologischen Vereins Apollo* is a revision of the Notodontidae to be found in China (*Die Zahnspinner Chinas*) by Dr Alexander Schintlmeister. The work reports a total of 339 species from China and Taiwan which increases the previous reported Notodontids from the area by 45% and describes a number of new species. The author considers that even so only some 70% of China's Notodontids are so far known. The Supplement is of A5 size and consists of 343 pages of which 126 are black and white plates of the moths and their genitalia with a few of distribution maps. The photographs of the species are in modern Xerox-type print and while they give a general idea of the differences to be found and will guide the user in the general direction of a genus, they are useless for specific identification. Nevertheless this is an important and useful systematic treatise on a little-known geographic area.

## BOOK REVIEW

*A step-by-step book about stick insects* by David Alderton.

Published by TFH Publications. (1992), ISBN 0-8662-349-5. A5 format, 64 pages, 41 colour photographs. Price £2.25.

There was no price on it — I had to ask. She said she wasn't sure and asked her colleague on the stall. I paid and walked away. "She's made a mistake" I thought, "no one can produce a book with colour photos for £2.00." Yes, she made a mistake! Elsewhere at the Leicester Insect Fair it was selling at £1.95! Since May, however, it has increased to £2.25.

I arrived home and sat down. "It must be rubbish at that price." The title page agreed with me, it has a photograph of a female *Extatosoma tiaratum*, the caption on the following page says "fully grown"; it isn't (fully grown *E. tiaratum* have small wings like the one on page 43). "Never mind, I'll give it a chance." I turned over the page.

Very quickly I changed my mind. Aimed at beginners, it is well researched and includes technical information in the most readable form I've ever encountered in such a book. It has a very interesting and factual general introduction, followed by sections on housing, feeding and care, breeding, species available, and an index. It even mentions the Phasmid Study Group in the first paragraph, as well as helpfully including a contact address at the end of the book.

The introduction is in fact quite a large section and offers insights into phasmids generally, predators, pest status, ways to obtain livestock, methods of transporting or posting them, and basic anatomy. I found an excusable error on page nine, there are in fact three established species in the wild in the UK; as the presence of the third species has only come to light recently (Brock, 1986, *Proceedings of the First International Symposium in Stick Insects*. 125-132), the error is understandable. What impressed me most in the introduction is that the author avoided the trap that every other author has fallen into— people interested in keeping stick insects do *not* want to know the technical names of every part of its body! The basic anatomy is just that, not a technical discourse on insect morphology and physiology.

The housing section is reasonably comprehensive, offering various options, all are suitable although it does not suggest my own favourite, a glass fronted, net cage. Heating is discussed and, although I disagree with the suggestion that the insects might sit on a light bulb and burn themselves, I agree that bulbs are not a good method; as the book states, heating pads are the most suitable method if heating is considered necessary.

I know I keep more phasmids than the average enthusiast, but even so I doubt if it is worthwhile trying to grow a supply of bramble in your garden for use in winter. Contrary to the suggestion in the book, I do find it worth growing *Pyracantha* as winter food, it keeps its leaves better than bramble. One strange thing is the suggestion that the foodplants, even when put in water, may wilt after two or three days; mine lasts two or three weeks without wilting. The two paragraphs on cleaning the cage advising frequent cleaning, with which I agree. However I do know people who successfully rear stick insects by leaving eggs and droppings in the cage, only cleaning once per year. The advice on water and humidity is consistent with the housing suggestions (although again not my preferred methods). The handling, diseases and euthanasia suggestions are very sound advice.

The chapter on breeding is a little deceptive in places; 1,000 eggs is normal for *E. tiaratum* in Australia but not in Europe, 450 is more realistic (Carlberg, 1987. *Z. Versuchstierkd.* 29: 39-43). A yoghurt pot is not a suitable container for egg laying medium for a species as large as

*Eurycantha calcarata*, a one or two litre ice cream container is more suitable. There is only one photograph of eggs and this shows only one species, a surprising omission in a book with such an excellent range of photographs; contrary to the author's belief, many inexperienced people have difficulty recognising eggs. Although there is a multitude of suggestions for egg laying media, there are no suggestions on the alternative methods of incubating eggs. However, apart from these points, the chapter covers breeding quite well, with a variety of ideas, a welcome change from the common practice of plugging only the author's personal preferences.

The short section on individual species recognises that there are many species in culture, and that only a limited number are widely available. It makes specific mention of six of the most commonly available and then briefly mentions a few others. There are a few minor errors: a common one in other places also creeps into this book: Mackay's spectre should be Macleay's from *E. tiaratum* (Macleay) 1827; *Eurycantha calcarata* is mis-spelt as *E. calarata*; the colour of *Calynda brocki* is given as chocolate brown — in my experience green or fawn are usual; if *Creoxylus spinosus* did reach 10cm long I would be very interested in seeing them — my largest specimen is 5.7cm.

The classic, inexcusable blunder I have saved until the end; page 43. What can I say? Why, oh why must people insist on printing photographs of *E. tiaratum* upside down? To compound the fault, the same picture is on the back cover

Having catalogued all the errors I have found, I must make my feelings clear. This is an excellently written, attractively presented book which is ideal for beginners. Given the cost, the number of colour photographs, the readability and the range of methods suggested this is without doubt the best buy for beginners. If the price remains at this level, there can be no excuse for every would-be stick insect keeper not buying a copy. Indeed it should be purchased by anyone with an interest — beginner or expert.

P.E. Bragg (8737)

## **LARGE WHITE BUTTERFLY LARVAE FEEDING IN WINTER**

by N. Butt (9109)

On 22nd March 1992, when visiting my brother near Blandford, Dorset, he mentioned to me that the previous day he had found and destroyed several caterpillars on his cabbages. We went into the garden and examined the plants and found one Large cabbage white (*Pieris brassicae*) larva. It was about an inch long and preparing to moult, which it did next day and is doing well as I write this note. I have never heard of this species over-wintering in the larval stage.

## ATALANTA

No, not the Red admiral butterfly, but the journal of the Deutschen Forschungszentrale für Schmetterlingswanderungen (German Society for the study of migrant Lepidoptera). They are appealing for International Co-operation in the research of the migration of insects and would welcome information and also subscribers to the Society and the journal. Issue No. 1 of Volume 22, entitled "Wanderfalter in Europa (Lepidoptera)," details the categories of migrant Lepidoptera and the modes of operation used in studying them. There is a list of the species concerned which are illustrated on 16 fine colour plates. For the benefit of all non-German speakers it is printed in English, French and Spanish as well as German, although readers will find the syntax of the English version rather odd.

The Society is finding that its work is greatly hampered by the very restrictive and bureaucratic "Wildlife Legislation (Bundesartenschutzverordnung)" in Germany which is considered both unfair and to be having serious effects on genuine research. One of the Society's objectives has been and is the marking of butterflies and the recording of the sighting of them subsequently (as is done by ornithologists ringing birds).

Further details may be obtained from Dr Ulf Eitschberger, Humboldtstrasse 13A, D-8688 Marktleuthen, Germany.





## WHAT THE CAT BROUGHT IN

by Dr Clive Betts (4976)

*Roseland, Poltimore, near Exeter, Devon EX4 0AT.*

During the past few months our home in the rural East Devon village of Poltimore has been a temporary home for two one year old kittens. Cats are renowned for their inquisitiveness and predatory instincts. These two features have combined in our kittens to produce some perhaps surprising results.

Virtually anything that moves is chased, briefly inspected and then (more often than not) eaten. As relatively young cats they are extremely quick and agile both on the ground and during aerial leaps. Consequently, letting them roam free in our garden has resulted in a daily toll of insect casualties.

I have so far retrieved from the cats the remains of six butterflies: five Small tortoiseshells (*Aglais urticae*) and one gatekeeper (*Pyronia tithonus*); three moths, a Jersey tiger (*Euplagia quadripunctaria*) and two Silver-Ys (*Autographa gamma*) and a large female Golden-ringed dragonfly (*Cordulegaster boltonii*).

Through weekends of continuous cat-watching I have managed to prevent the imminent capture of numerous other butterflies and moths including a number of Common blues (*Polyommatus icarus*), Meadow browns (*Maniola jurtina*), Peacocks (*Inachis io*), Speckled woods (*Pararge aegeria*) and a superb Hummingbird hawkmoth (*Macroglossum stellatarum*). A male Red darter dragonfly (*Sympetrum striolatum*) has also had at least one narrow escape, and two Painted lady butterflies (*Cynthia cardui*) have recently been pushing their luck. . .

There have been many more failures on my behalf: notably assorted microlepidoptera (especially Plume moths, Pterophoridae), at least one Great-green bush cricket (*Tettigonia viridissima*) which was pounced upon and devoured whole while I was still watching it, and a small Oak bush cricket (*Meconema thalassinum*). It has also been a continuous battle to halt the massacre of large numbers of Meadow grasshoppers (*Omocestus viridulus*) and even a few unsuspecting beetles (Carabidae and Staphylinidae) and hoverflies (Syrphidae). These snacks are regularly supplemented by quantities of bluebottles, houseflies and craneflies, which have (hypocritically perhaps) not bothered me too much.

Any natural defences of these insects hold no sway with the cats: the insects are comprehensively chewed or swallowed whole, which has resulted in forced regurgitation soon after in some cases. However, this does not seem to put the cats off from trying the same species again!

These particular felines have an unnerving ability to target the less common species. Coupled with the knowledge that they must be capturing many more than those actually recorded, our cats are exerting a very concentrated pressure on the local wildlife populations. Ours do not seem to be characteristic of cats in general in their entomological pursuits, and they may "grow-out" of this phase. However, cats *can* be disruptive to wildlife: a survey from some years ago (see *Natural World*, Summer 1990, p50) reveals that 14 species of small mammals were caught by domestic cats, plus over 40 species of birds. In addition they will capture lizards, slow-worms, newts and frogs, as well as insects and other arthropods. It is generally accepted that ecological damage by cats is minimal, especially when compared to other factors, but the situation must be more serious where large numbers of cats and/or small areas of wild habitat are involved, or where wildlife populations are already small, scattered or isolated.

When we actually look at cat populations a new perspective is revealed:

In the South-west alone approximately 23% of households have one or more domestic ("owned" and cared-for by humans) cats — about 1,000,000 individual cats — and there are a further 300,000 or so feral (free-ranging, and quasi-wild) cats. Of the feral population in rural areas 80 to 90 per cent are associated with farms who maintain it is in their interest to have a large feral population to control vermin.

Kittens are still given as gifts for children (or adults): many end up (or start out) unwanted and are left to cope for themselves. Others stray from home. Without neutering, local cats can rapidly increase in this way, leading to more stray and feral cats.

The Cats Protection League (CPL), the largest cat charity, helped over 150,000 cats in 1990, 60,000 being neutered. This is, however, the tip of the proverbial iceberg. The CPL recognises the problems caused by such massive, uncontrolled cat populations and is committed to a programme of feral population management and regulation of cat ownership.

Everyone, but naturalists especially, should think very carefully about keeping a pet cat, *before* they get hooked by a big-eyed bundle of fur:

- can you care for it adequately throughout its natural lifespan?
- could it adversely affect any *fragile* habitats in the immediate area?
- are you willing to cope with the inevitable wildlife casualties?

If you are unsure about any of these issues, is it not better to play safe and avoid keeping a cat?

The Cats Protection League can be contacted at 17 King's Road, Horsham, W. Sussex RH13 5PP.

## LARGE TORTOISESHELL IN HERTFORDSHIRE

by Stuart Pittman (9135)

On Monday 6th July this year I had the extreme good fortune that all Lepidopterists dream of — that encounter with a very rare species.

The distinctive and easily recognisable example of the Large tortoiseshell (*Nymphalis polychloros*) was gliding low down on a grassy hillside on the verge of a wood. It stopped to visit flowers on two occasions, which helped to identify some of its key features. Basking with wings open, size approximately 70mm (similar to that of a Red admiral) and with no blue marks on the forewing, similarly lacking its smaller relative's white spot.

I was unaware that historical records existed for this site which is on private land and which I have a permit to be on. On speaking with Brian Sawford (author of *The Butterflies of Hertfordshire*) he gave me the following information of interest.

Sightings in the area between 1978-1984 and three in 1982 may possibly be down to releases. With the exception of two near Crews Hill in March 1972 and three at Borehamwood in March 1973, other sightings in Hertfordshire have been of singletons.

It is hard in the climate where entomological livestock is available, not to be suspicious of Large tortoiseshell sightings. However, it is just as hard to dismiss a specimen like this that I observed in a suitable habitat, and I for one, do not believe it could have been released on this private estate without my knowledge.

## OF CATS, HUMMINGBIRDS AND EMPERORS

by Don McNamara (5573)

The day after the election was positively therapeutic — warm to hot, cloudless sky, about 17°centigrade. So out for a little run through the sunlit pathways of Ten Acre Wood, Northolt, West Middlesex. Beautiful! A galaxy of Vanessids — *Aglais urticae* (Small tortoiseshell), *Nymphalis io* (Peacock) and *Polygonia c-album* (Comma) flitted and nectared around the sunlit dappled pathways and bright patches, *Pararge aegeria* (Speckled wood) inspected the quiet places — and the whites were there in profusion, among them the first, fresh *Anthocharis cardamines* (Orange-tip). Superb!

Then, quite suddenly, a newcomer. As they say — something completely different. With quite unexpected speed a large moth stopped in mid-air about a yard in front of where I was standing, to probe the red campion, its wings a blur. *Macroglossum stellatarum* (Hummingbird

hawkmoth). It fed just like a hummingbird. A few quick dashes to inspect other flowers, a pause, more probing — then as suddenly as it had appeared, it flew over some bramble, and was gone. This was a “first” for me, in the UK.

A few days later, not far from Ten Acre Wood, in the back garden — where the weather had returned to the usual cold, overcast and somewhat windy aspect, and while inspecting a cage of newly-emerged *Saturnia pavonia* (Emperor moths), I saw a large moth, dark against the cloudy sky fighting against the stiff breeze obviously trying to land on the cage top. A male Emperor. The door was opened, it obligingly flew in and within 90 seconds had paired with one of the “calling” females. West London is not noted for its Emperor population. Another “first”.

During discussions about these two events, local naturalists said that the Hummingbird hawkmoth has always been a regular, if uncommon visitor to woods in the area, but usually sightings occur in July or August. A fellow AES member also had an Emperor do the same thing not far from here — in Southall, possibly, he thought, the result of “entomological activity”. The cat? It fell through the Emperor cage that night, releasing its occupants. Perhaps someone will write in to say they’ve seen them in the area.

## **CAMBRIDGESHIRE BUTTERFLIES — HISTORICAL RECORDS WANTED**

Val Perrin is compiling a historical account of Cambridgeshire butterflies to accompany a seven year species’ distribution survey, which is nearing completion. He would be very grateful for any reliable information on butterfly records for vice county 29 (old Cambridgeshire) prior to about 1980, or any other sources of information (e.g. published articles, labelled specimens) that could be consulted on the topic. He can be contacted at 12 The Crescent, Impington, Cambridge CB4 4NY. Tel: 0223 233690.

## **CATERPILLAR CARNAGE**

*by Frank Marples (8236)*

The larva of the Lackey moth (*Malacosoma neustria*) has appeared in great numbers in the Portsmouth area, during May and June, 1992. I have seen the distinctively-coloured caterpillars in their silken tents, among rose and hawthorn bushes; yet more remarkable, perhaps, has been the spectacle of sheer carnage over roads and walkways, — vast numbers trodden under-foot and crushed by tyre. These numbers may be attributable to the hot and dry spring weather. There may, however, be other factors (unknown to me) causing the phenomenon to be fairly local.

## GREEN-VEINED WHITE AT LIGHT

by Jan Koryszko (6089)

I was most interested to read Owen Lewis' note (*Bulletin* 50: 240) about a Green-veined white (*Pieris napi*) caught in his moth trap during August 1991.

One evening in August 1990 I had to make a telephone call when it was well after dark. As I entered the box I noticed a number of insects inside, a moth roosting, and a number of wasps attacking bluebottles around the light. Then I noticed a Green-veined white walking close to the light and flapping its wings, no doubt attracted by the light. But strangely the wasps showed no interest. It was quite a windy night so did it come in to shelter?

Back in the early 1970s I ran a moth trap — a mercury vapour trap. One evening at around midnight I noticed a Small white (*Pieris rapae*) fly from out of one of my buddleia bushes, and enter the trap. Strangely the trap had been on almost two hours, so it did not attract the butterfly which must have been roosting in the bush right away. Maybe the butterfly came to investigate the source of light.

I feel that at times even a very weak light will attract insects. Many food shops etc use a dull bluish light to attract and kill a number of flying insects during day and night. It would be interesting if other members had any similar observations, or any ideas about this subject.

## THE 5th INTERNATIONAL EXHIBITION OF THE INSECTS

The 5th International Exhibition of the Insects is organised this year in Paris by the Groupe d'Etude des Phasmes.

This exhibition will take place in the Parc Floral of Paris on Friday, 13th November to Sunday, 15th November 1992.

The Parc Floral (31 hectares) is a park for walks and leisure activities well known to the inhabitants of Paris and its suburbs.

For this exhibition, the GEP has booked four linked pavilions surrounded by greenery, trees and flowers. In this exceptional setting with a surface area of 1500 square metres, this exhibition should be one of the most prestigious ever organised.

The exhibition is open on Friday, 13th November from 12.00 noon to 6.00 pm, Saturday 14th and Sunday 15th November from 9.30 am to 6.00pm.

A buffet and bar will be organised in the exhibition room.

Access to the exhibition is as follows:

Metro: line No. 1, Station "Chateau de Vincennes". Bus: line No. 112.

Car: five minutes from Peripherique Boulevard (exit: "Porte de Vincennes"). Five minutes from motorway A4 (exit "Joinville").

There is a large free car park. Signposting "Parc Floral" in the wood of Vincennes. The Parc Floral is in front of the castle of Vincennes.

For further information contact: Pierre-Emmanuel Roubaud, Groupe d'Etude des Phasmes, 17 Avenue Foch, 94100 St. Maur, France. Tel: 42.83.47.30

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This is a massive event and is to be held over two days; Sunday 20th and Monday 21st September 1992. The venue is the prestigious "Commodore International Conference Centre", Nuthall Road, Nottingham. It is very easy to find and is only six minutes drive from Junction 26 of the M1 motorway. The fair will be AA signposted and ample free car-parking is available. For visitors travelling by train or plane there is a courtesy bus to take them from Nottingham station or East Midlands International Airport to the fair.

Entrance is just £1.20 for adults, 80p (5-14 years) and free for under fives. Tickets bought in advance are entered into the free prize draw. For more information contact the organiser, Dorothy Floyd, Small-Life Supplies, Normanton Lane Industrial Estate, Bottesford, Nottingham NG13 0EN. Tel. (0949) 42446.

## **ROOSTING VANESEIDS IN HERTFORDSHIRE**

*by Stuart Pittman (9135)*

On 14th January this year I witnessed a group of 25 Small tortoiseshell butterflies clustered on the bare brick vertical wall inside the passageway of a block of flats. A second visit that evening to celebrate with my mother-in-law the birth of my first child produced the second apogee of the day. A Small tortoiseshell and a Peacock butterfly flying by the light bulb just inside the entrance at 21.00 hours! My first sightings of 1992 were indeed a celebration of a momentous day.

## LATE EMPEROR DRAGONFLIES *ANAX IMPERATOR* IN NORTH WARWICKSHIRE

by *Brian R. Mitchell* (8068)

*Reserve Recorder, Alvecote Pools NR (SSSI)*

Muriel Woolven's account (*Bulletin* 51: 87) of late Emperor dragonflies in Dorking, Surrey was very interesting in the light of a report (by two experienced dragonfly-watchers) of late Emperors along a stretch of the River Anker at Alvecote Pools NR (SSSI), North Warwickshire on 8th September 1991.

Wardens H.C. Morrall and M.W. Painting saw a large bright blue dragonfly buzz a Brown hawk, *Aeshna grandis*, then hawk over the water, going in and out of the reeds at water level. Eventually, it settled about six feet away and good views were obtained to confirm its suspected identity. More remarkable, shortly after this, was the possible sighting of a female Emperor dragonfly, while ten minutes later a pair flew along in tandem. Both observers spent nearly an hour there watching the Emperors.

*A. imperator* was first recorded at Pretty Pigs Pool (which is in Staffordshire), Alvecote Pools, on 27th August and there again on 4th September 1983 by G.A. Arnold. The only other record is of one on 3rd August 1985 at Path Pool, Pooley Fields, by H.C. Morrall. These further 1991 sightings, particularly of pairing Emperors, are therefore noteworthy.

## SOME EARLY 1992 SPRING RECORDS

by *Roger Hayward* (2769)

By Slough standards things really looked up during the last third of April. The catch in my garden on the night of the 19th included a *Drymonia ruficornis* (Lunar marbled brown), new to my garden list, a *Cucullia verbasci* (Mullein) and two *Nycteola revayana* (Oak nycteoline), both new species to my Slough list. The 23rd brought a *C. chamomillae* (Camomile hawk), which I had not seen for several years, and a second arrived on 3rd May. Another species to re-appear after an absence was *Eupithecia tripunctaria* (White-spotted pug) which graced my garden trap on the night of the 29th. The next night brought a great surprise in the shape of a very early *Mimas tiliae* (Lime hawkmoth), the first I have captured in April during some 40 years of collecting. Several species, notably *Lycia hirtaria* (Brindled beauty) and *Diaphora mendica* (Muslin moth), were much more common than last year.

No butterflies were seen before mid-April, and it was only in mid-May that the first *Celastrina argiolus* (Holly blues), a pair in courtship dance, passed through my garden.

## THE HAMMOND AWARD WINNERS

It is now ten years since the Hammond award was instituted for the best article published each year in the *Bulletin*. The award is worth £50 and is voted on by your elected members of Council. Since (as far as we are aware!), contributors send in articles because they feel they have something relevant to write about which will also be of interest to fellow members, rather than having the award in mind, it has come as a pleasant surprise to the winners when their name is announced at the AGM. Regrettably, due to a lack of communication somewhere along the line, the winners have not also been announced recently in the pages of the *Bulletin*. Recent winners have been:

**1990.** Don McNamara (5537): for his article *Notes on the genus *Brahmaea** (Walker), the Brahmid moths of the family Brahmaeidae. *Bulletin* 439: 11-14.

**1991.** John Gale (9270): for his article *Practising biological control in my greenhouse*. *Bulletin* 50: 165-167.

## CAMBERWELL BEAUTY REPORTED IN NORFOLK

by Christopher Bales (6774)

It was unfortunately not my privilege to see it, but in their issue of Friday 12th June this year the *Great Yarmouth Mercury* reported that their correspondent, Bryan Haylett, saw a specimen of the rare immigrant Camberwell beauty butterfly (*Nymphalis antiopa*) which was hovering around a bramley seedling apple tree in his garden at Bradwell on the previous Sunday. Because of its early date and very fresh colour Mr Haylett believed it may perhaps be an escapee from a butterfly farm or private breeder.

## THE SMALL TORTOISESHELL AND A WHITE BACKGROUND

by Douglas Goddard

I read with interest Stuart Pittman's observation of a Small tortoiseshell (*Aglais urticae*) sunbathing on a snowridge (*Bulletin* 50: 111). While the date was very early for this species out of hibernation, the use of snow I did not find so surprising. I was reminded of numerous occasions when I have walked to and from the school where I teach across a recreation ground to observe many Small tortoiseshells sunning themselves on the white lines marking the football pitches, picking these out amid a vast expanse of green. White surfaces would appear to be attractive to this species for aiding thermo-regulation.





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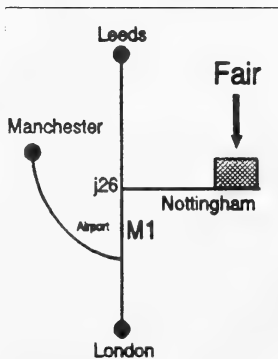
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Volume 51, No. 384, October 1992

# The Bulletin of the Amateur Entomologists' Society

EDITOR

BRIAN O. C. GARDINER, F.L.S., F.R.E.S.

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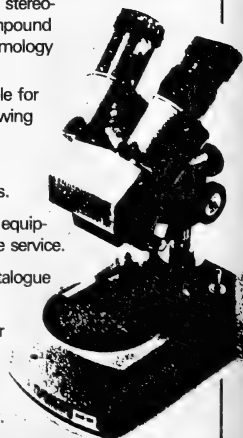
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# AES BULLETIN

No. 384



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## THE BUTTERFLIES OF COUNTY KERRY

by Michael O'Sullivan (7592)

3 St James Gardens, Killorglin, Co. Kerry, Eire.

### INTRODUCTION

Since the initial pioneering work of Edwin Birchall and Peter Bouchard in the mid-nineteenth century, County Kerry, and Killarney in particular, has earned the attention of numerous entomologists, both native and from overseas. Peter Bouchard, who was commissioned by the British Museum, undertook much research in the locality, culminating in 1959 with the discovery of the White prominent (*Leucodonta bicoloria*). This moth has a most fascinating history.

During subsequent years, the species was reported from Caragh and Kenmare. Three larvae were taken in Kenmare in 1932, by Donovan, and he took a male moth on 12th May 1938 at Killarney. In the five decades since then, no further records are known, despite the extensive use of MV lights. A contemporary of Bouchard, Edwin Birchall, often dubbed "The Father of Irish Entomology" appeared on the scene about 1962. Interestingly, he too had his moment. In June 1954, on Croagh Patrick, County Mayo, he took the first of only four specimens ever taken in Ireland of the Small mountain ringlet (*Erebia epiphron aetherius*).

Other entomologists most notably Donovan and W.F. de Vismes Kane had associations with the district. Edwin Bullock, a coleopterist of considerable note, worked the area for many years and undertook trojan work in his field. Most recently, Raymond F. Haynes has been responsible for a significant amount of recording and collecting, mainly Heterocera, and his magnificent collection is the culmination of over half a century's work. Thankfully, even though amateur entomology in Ireland is most certainly a minority occupation, the County Kerry area has, significantly, two of the country's most active and foremost workers in John and Tim Lavery, who are responsible for great strides in our

local knowledge, and to whom I am greatly indebted for records supplied to allow completion of this article.

Even though the overall picture is by no means close to being complete, the framework is gradually being assembled by extensive fieldwork and intensive investigation. The records for this article have taken about ten years to tabulate and, thankfully, the scenario is much more encouraging than anticipated. Though some species have undergone somewhat of a decline, others, most notably the Purple hairstreak (*Quercusia quercus*) have been found to be widespread and abundant in certain localities. This species is generally considered to be one of the most uncommon of our Irish butterflies but we have, happily, had plenty of evidence to revise this thinking.

### *HESPERIIDAE*

Dingy skipper (*Erynnis tages baynesi*).

This species is particularly abundant on the limestone escarpments of the Burren, Co. Clare, and also at Barrigone, Co. Limerick (J.W. Lavery, T.A. Lavery & T. Ryall). Despite recent reports that an English visitor is reputed to have seen imagines on Valentia Island, and though this is unsubstantiated, it is quite improbable that this occurrence would be accurate given the time of the supposed sighting and the geography of the area. This apart, there are antiquarian records, from Killarney, dating from the 1890s.

### *PIERIDAE*

Large white (*Pieris brassicae*)

This butterfly, which is probably the most familiar to non-entomologists everywhere, and most maligned by gardeners, is widespread though prone to numerical fluctuations. Through the early and mid-1980s, a general decline in the species was notable but recent years have heralded a marked resurgence.

Small white (*Pieris rapae*)

Again, as with *P. brassicae*, this species is widespread and may be encountered in many situations. Larvae have been noted from members of the Cabbage family (*Brassica*), Nasturtium (*Tropaeolum*) and also on sweet rocket (*Hesperis matronalis*) in the flower garden. Reasonably common, but less so than either *P. brassicae* or *P. napi*.

Green-veined white (*Pieris napi britannica*)

One of our most abundant butterflies, it is found commonly in shaded and wetland environs. Specimens are extremely variable in marking and, though less so, in size. Some remarkable variations have been captured.

A magnificent aberration, with virtually transparent wings, though having well-defined venation, was taken by John Lavery at Castlemaine in May 1985. This specimen is now housed at the Ulster Museum, Belfast.

Plate B, No. 1 is a specimen taken from the Castlemaine area.

#### Bath white (*Pontia daplidice*)

Records for this rare migrant date back almost half a century. Four specimens were reported from Waterville by R. Meinertzhagen on 18th October 1945. In 1946, another single butterfly was seen by C. Mackworth-Praed.

#### Wood white (*Leptidea sinapis juvernica*)

The Irish sub-species is a more attractive insect than its British counterpart and is locally abundant in some localities in Ireland, none more so than the Burren district of County Clare. Raymond F. Haynes informs me that *L. sinapis* was abundant at Killarney in 1937 and 1938. However, since 1946, numbers have declined dramatically and this has also been reflected throughout the entire county where records have been virtually non-existent since the nineteen-sixties. John Lavery took a male at an Alder Carr at Castlemaine on 3rd June 1985 whilst on 22nd May 1990, he took a female at Scotia's Glen on the Slieve Mish Mountains which overlook the Castlemaine region. Both capture sites are in close proximity to one another. Until 1991, these were the only known reliable records for this species in County Kerry. However, on 23rd June 1991, he discovered a thriving colony at Ballyhar near the Tralee-Killarney railway line. This was most welcome as we had searched a good number of areas where the butterfly had been known to occur previously but without success. Quite probably, we will find that the species will be reasonably widespread in this area but this is an assignment for another time. At present, the important aspect is that *L. sinapis* is maintaining a secure foothold in a region where it can be considered safe from the dangers of agricultural progress.

Plate B, No. 3 is a Burren specimen.

#### Clouded yellow (*Colias croceus*)

A migrant species appearing annually in varying quantity, 1982 and 1983 being years of usually high numbers. I have seen the species on only one occasion, in August 1982, near Castlemaine Harbour. Good numbers have been reported by John Lavery and Tim Lavery. In 1990, Tom Ryall noted some on the sandhills at Derrymore whilst others were noted at sites much further inland.

#### Pale clouded yellow (*Colias hyale*)

Apart from Kane's report of *C. hyale* occurring sparingly in 1868, no further county records exist.

*Brimstone (Gonepteryx rhamni gravesi)*

Apart from a single specimen noted by John Lavery at Dew Lough, Dinis at Killarney on 25th July 1991, the only County Kerry records which I can substantiate are those of Raymond F. Haynes who observed imagines on Rabbit Island, Lough Leane, Killarney in 1937. The other most recent sightings from Ross Island, also Killarney, are also rather old, dating from the mid-1960s. It is quite plausible that *G. rhamni* still occurs at this locality, given that the larval foodplant, buckthorn (*Rhamnus catharticus*) grows in relative profusion about the shoreline of Lough Leane. Elsewhere in the county, it is, apparently, quite rare.

*Orange-tip (Anthocharis cardamines hibernia)*

Abundant in suitable localities where the larval foodplant, Lady's smock (*Cardamines pratensis*) grows. Ova, larvae and imagines are readily located. Unfortunately, the increase in land reclamation projects is a worrying development and could possibly devalue the current strong status of this attractive insect.

Plate B, No. 2 is a Castlemaine-captured specimen.

The capture site of this particular specimen is presently under threat from tree felling and land drainage.

*LYCAENIDAE**Green hairstreak (Callophrys rubi)*

Locally common in wooded areas throughout the entire region. This species displays a peculiar affinity for birch (*Betula*) and large numbers may frequently be observed in the immediate vicinity of, or on, these trees.

*Brown hairstreak (Thecla betulae)*

Kane once reported this species as common in South-western Ireland whilst Donovan, despite over fifty years of experience, had never seen a live Irish specimen! Restricted now, in all probability, to the Burren. Being a notoriously retiring species, it is quite possible that it could exist in some secluded locality where it would be overlooked. Certainly, there is apparently no scarcity of seemingly ideal habitats. I am unaware of any County Kerry specimens.

Plate A, No. 3, is an adult bred ex-larva obtained in the Burren in June 1986.

*Purple hairstreak (Quercusia quercus)*

One of the rarer Irish butterflies, on an overall Irish context. Raymond F. Haynes took the species during the 1940s and 1950s in the Killarney area and, in the company of Norman Hickin, took larvae at Kenmare in the late 1970s. Following several years of extensive investigation, John Lavery and I took larvae and imagines at Uragh Wood, Kenmare during

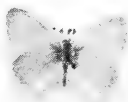
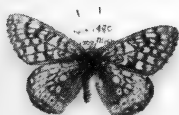


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## PLATE A:

1. *Quercusia quercus* L.
2. *Argynnis aglaja* L.
3. *Thecla betulae* L.

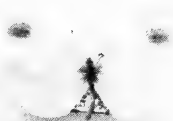
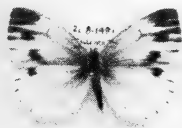
4. *Eurodryas aurinia* f. *hibernica* Birchall
5. *Hipparchia semele hibernica* Howarth
6. *Coenonympha pamphilus* L.

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## PLATE B:

1. *Pieris napi britannica* Verity
2. *Anthocharis cardamines hibernica* Williams
3. *Leptidea sinapis juvernica* Williams

4. *Polyommatus icarus mariscolore* Kane
5. *Maniola jurtina iernes* Graves
6. *Lycaena phlaeas hibernica* Goodson

1989. We also noted specimens at Ross Island, Killarney, the first sightings here in over forty years! John Lavery subsequently took larvae, in 1990, at Derrycunihy over a wide area and there are reports (through Tim Lavery) from Lickeen Wood, Glencar. This is an oakwood situated a good distance from the Killarney demesne.

1991 was another good year for reports, with the species being recorded in larval form over a greater expanse of the Killarney National Parklands and also from another new site at Ballyhar.

Happily, this majestic butterfly is more widespread, at least in County Kerry, than was ever previously anticipated, and this is most heartening.

Plate A, No. 1, is a bred specimen, ex-larva, from Uragh Wood, 1989.

Small copper (*Lycaena phlaeas hibernica*)

Generally distributed, to be found in particular abundance in woodland situations throughout the entire county.

Plate B, No. 6 is a specimen taken at Castlemaine in July 1984.

Small blue (*Cupido minimus*)

Apparently coastal in its distribution. Personally, I have only seen the species on two sites in the country. The first, a singleton, was observed on the hillside overlooking Inch in 1983. A colony thrives on the Castlegregory sandhills further north. It was first noted here in 1987 by John Lavery and the author. It has also been recorded, recently, at Banna Strand. Most likely much more widespread, though probably overlooked.

Common blue (*Polyommatus icarus mariscolore*)

Widespread and abundant. The larval foodplant, Bird's-foot trefoil (*Lotus corniculatus*) grows profusely. In many areas, imagines can be observed in abundance under suitable circumstances. The Irish subspecies, *mariscolore*, is a particularly attractive insect.

Plate B, No. 4 is a Burren-captured specimen.

Holly blue (*Celastrina argiolus britanna*)

Contrary to assertions in the literature, *C. argiolus* is double brooded, at least in the southernmost regions of Ireland. Though widespread throughout the county, it is nowhere common and most likely encountered in open woodland situations, or in the garden, in the vicinity of the larval foodplants. Numerically susceptible to wild fluctuations, 1985 and 1990 were years of particular abundance. Early indications for 1991 suggest a good first brood with imagines being reported as common.

## NYMPHALIDAE

Camberwell beauty (*Nymphalis antiopa*)

Two County Kerry records exist. The first, from Caragh Lake in 1865 and the second, from Waterville, in 1958 (Brown).

**Red admiral (*Vanessa atalanta*)**

Recorded most years, most notably from built-up areas where they are readily observed feeding on windfallen fruit or from buddleia (*Buddleia* spp.). Though numbers vary greatly, 1989 was a year of particularly high numbers, especially later into the season.

**Painted lady (*Cynthia cardui*)**

Small numbers reported each year, but much less widely sighted than *V. atalanta*.

**American painted lady (*Cynthia virginienensis*)**

Only two Irish records. In August 1930, R.N. Snell recorded a specimen from Killarney. The only other record was by a Miss B. Donovan from County Cork the previous year, on 12th August.

**Small tortoiseshell (*Aglaia urticae*)**

Generally the first species to be seen during the first warm days of spring. Quite abundant but suffered a noticeable decline during the mid-1980s. Of late, the species has undergone a massive resurgence, having never been as commonly seen as late summer/early autumn 1991.

**Peacock (*Inachis io*)**

Unfortunately, for some reasons which are quite unapparent, this butterfly has become much less common in more recent times. Now, seemingly, it is a rare occurrence to find the larvae on nettle (*Urtica dioica*). Cannot now be regarded as common.

**Queen of Spain fritillary (*Argynnis lathonia*)**

One county record only. Noted by Birchall, at Killarney, on 10th August 1864.

**Dark green fritillary (*Argynnis aglaja*)**

Coastal in its distribution, as with the remainder of Ireland. Widespread, though uncommon. Imagines are observed on an infrequent basis.

Plate A, No. 2 is a Burren specimen.

**Silver-washed fritillary (*Argynnis paphia*)**

Our most common fritillary. This species can constitute a spectacular sight when seen in large numbers, as indeed it was at Killarney in August 1983, when during a heatwave, many thousands were observed. *A. paphia* is widely distributed and represented in most woodland situations.

**Marsh fritillary (*Eurodryas aurinia* f. *hibernica*)**

Recent County Kerry records are sparse. I was fortunate to locate a colony at Lickeen Wood, Glencar in June 1989 in an area where Scabious

(*Succisa pratensis*) grows in abundance. Interestingly, Raymond F. Haynes' collection contains specimens taken at Lickeen and also from Killarney, in 1958. John Lavery has, during the course of the 1980s, taken a number of isolated specimens along the Slieve Mish Mountains. Plate A, No. 4 is of one such insect, taken on 14th June 1980.

### SATYRIDAE

#### Speckled wood (*Pararge aegeria*)

Extremely common, frequenting sheltered gardens, woodland clearings and a majority of similar shaded localities.

#### Wall (*Lasiommata megera*)

Most likely encountered in coastal districts but less frequently noted inland. Locally common and the second generation tending to be much more numerous than the first.

#### Grayling (*Hipparchia semele hibernica*)

Mainly coastal in its distribution, can be found abundantly in certain areas. Scattered colonies also inhabit some mountainous regions inland, as at Glencar, Uragh Wood near Kenmare and Killarney's famous Ladies' View. *Hibernica* differs from *H. semele clarensis*, which appears to be restricted to the Burren.

Plate A, No. 5 is a particularly dark specimen taken at Uragh Wood in July 1989 whilst flying in the oak canopy with *Q. quercus*!

#### Gatekeeper (*Pyronia tithonus*)

Although I have never seen this species outside of Glengarriff, County Cork, Raymond F. Haynes took it at Glanmore Lake, near Kenmare in 1965. Reputed to occur at Lauragh, confirmation is required. Occurs commonly in south-east Ireland in Counties Waterford and Wexford.

#### Meadow Brown (*Maniola jurtina iernes*)

During its flight period, *M. jurtina* is unquestionably our most abundant butterfly! Encountered in an astounding diversity of habitats, ranging from coastal to semi-montane, this species first appears about mid-June and stragglers frequently turn up as late as mid-August. Many striking variations have been captured. The most outstanding was taken by John Lavery at Castlemaine in July 1989.

Plate B, No. 5 is a specimen taken in the Burren in 1984.

#### Small heath (*Coenonympha pamphilus*)

Extremely common, especially in the foothills of the main mountain ranges and also in most open grassy situations. No sign of a decline. If anything, this species is more than holding its own.

See plate A, no. 6.

### Large heath (*Coenonympha tullia scotica*)

County Kerry is the most southerly point of the range of this species in the British Isles. On an overall Irish platform, this is a rare insect. Raymond F. Haynes' collection houses specimens from Killarney (Looscanought 1955 and Lough Guitane 1956) but there were no further records/specimens so far as I am aware, until June 1989 when I found the species at Glencar. Subsequently, Tim Lavery took it at Mount Brandon and Gleantanasig, further north. Though specimens taken were rather worn, they were readily identified as *scotica*. I have seen specimens from the midland counties which were ssp. *polydama*.

### Ringlet (*Aphantopus hyperantus*)

Widely distributed and extremely common during June/July. Most certainly one of our more common species. A few slightly aberrant specimens have been taken over the years. Again, John Lavery has taken the majority of these!

## DANAIDAE

### Monarch (*Danaus plexippus*)

One record only, dating from Westcove on 27th September 1933.

## HISTORICAL

The long-debated report by Birchall that the Heath fritillary (*Mellicta athalia*) occurred "in plenty" at Killarney in the early 1860s has now entered into Irish entomological folklore. Tim A. Lavery (*Bull. amat. Ent. Soc.* **48**: 158-159) examines this case, reaching the conclusion that the species is erroneously included in the Irish List. This is a conclusion with which the author concurs, though some disagree. Hence the debate continues!

Whilst some records may seem plausible, others border on downright debatable. An instance would be Canon Foster's reported sighting of a White admiral (*Ladoga camilla*) at Tarbert on the County Kerry side of the Shannon Estuary. I have been unable, not surprisingly, to determine a date for this report.

Other rather strange and, no doubt mistaken, reports included one from Kane which stated that the Large skipper (*Ochlodes venata*) was ". . . not uncommon in a meadow at Lord Kenmare's demesne, Killarney." In the mid-1850s, Andrews is said to have sighted a Large copper (*Lycaena dispar*) in the south-eastern proximity of Castlemaine Harbour. W. Salvage, the notorious supplier of "Clonbrockian" style specimens is alleged to have taken two Grizzled skippers (*Pyrgus malvae*) at the Copper Mines, Ross Island, Killarney. This species was again

reported from Killarney in 1934. Interestingly, Donovan included it in his Catalogue (1936) whilst Baynes did not!

© NB. For those who are not familiar with the term "Clonbrockian" it is a term used, courtesy of Tim Lavery, to describe records/specimens which are of a rather (for "rather" substitute "extremely") dubious nature.)

### CONCLUSION

It is quite difficult to comprehend that almost a decade's recording has been confined to such a few short pages!

However, it has been seen that four species, *Quercusia quercus*, *Leptidea sinapis*, *Eurodryas aurinia* and *Coenonympha tullia* have been noted to be still in existence in County Kerry despite growing fears for their future on a national basis. As for the other species, only *Inachis io* seems to have suffered any serious decline in numbers and this, hopefully, is only a temporary setback for this majestic nymphalid.

As for the future, if the past ten years are any indicator, matters will improve even more drastically. There are plenty of beautiful, unspoilt areas in this county which will hopefully serve as safe havens for our insect fauna for the foreseeable future and, with people now being more environmentally aware, this too can only be beneficial.

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### NOTICE TO AUTHORS

Could I please ask all contributors sending me material for the *Bulletin* to submit it in **DOUBLE-SPACING** and with wide margins on the paper. This applies whether the manuscript is word-processed, type-written or hand-written.

Nothing should be underlined and only the title wholly written in capitals. Manuscripts so presented save the Society money, for many single-spaced and misguidedly underlined articles have to be re-typed before there is enough space to edit them.

### HUMMINGBIRD HAWKMOTH IN NORTHAMPTONSHIRE

by Carol Brown

I should like to report that on 3rd August this year in Desborough, at around 8pm, a specimen of *Macroglossum stellatarum* paid a visit to my honeysuckle and stayed on it for ten minutes or so. During the 35 years I have lived in Northamptonshire it is the first one I have seen in the county.

## OF FERTILIZERS, PREDATORS AND FOOD QUALITY

*by John Gale (9270)*

Most farmers, growers and gardeners will agree that in the spring a top dressing of fertilizer to help plant growth is a good thing. The fertilizer gives the plants a boost in growth and the resulting early start means that they will give a much greater yield of crop.

BUT — nature doesn't give plants an equivalent to this spring top-dressing. Quite the reverse. A naturally ("organically") grown plant has to rely on the bacterial activity in the soil releasing plant food and this happens some time after the plant has started growing (plant growth responding to air temperature whilst bacteria respond to soil temperature and the mean soil temperature always trails behind the mean air temperature). The result is that the spring growth is pale and weak, even suffering varying degrees of nitrogen deficiency.

Therefor a spring top-dressing of fertilizer seems very logical until one considers the ecology of the insects that live in association with the crop.

All the plants are attacked by herbivorous insects, but it appears that those insects on fertilized crops reach pest proportions far more often than do those on unfertilized crops.

Perhaps the explanation of "Nature's lack of a spring top-dressing" could be connected with the time differential (in the breaking of dormancy and the subsequent breeding) between the herbivorous insects and their predators.

When the herbivorous insects come out of hibernation, the size of the first generation is affected by the quantity and quality of their food supply (and presumably the insect ecology of the crop for the whole year may also be determined then). If they are feeding on a fertilized crop, the lush growth not only provides more food but also food of a higher nutritional value. Their fecundity is increased and by the time that their predators arrive on the scene, their numbers are already too high for the predator to control.

In the corresponding "organic crop", the population of the herbivorous insects does not increase to such large proportions because the food supply is smaller and less nutritious. When the predators arrive, their population is not too large and the predators can keep the population under control, or, to put it another way, the plants do not become sufficiently lush to support a large population of herbivorous insects until later in the season when the predators are present in sufficiently large numbers.

## DEATHS-HEAD HAWKMOTH *ACHERONTIA ATROPOS* IN HAMPSHIRE

by R. S. Andrews (8970)

“Roger, Roger, look what we have found!” This was my neighbours’ children, Kirt, aged 13, and Gemma, 9, running down the lane on 30th August last year. They had been bringing me every caterpillar they had found in their garden last summer, including handfuls of Large white larvae which I very politely sent back!

But this time I could see they had something special. It was a fully grown Deaths-head hawkmoth larva. They had been digging up their father’s potato patch all day and had got as far as the last two plants when they found it.

I went back to their garden and saw a large pile of potato tops about three feet high which their dad was about to burn. While I went back home to get a cage the children searched the pile of potato tops with their dad’s help and found ten more larvae, all more or less fully grown, one of which was of the brown form. A week later we found another larva quite happily feeding on some bindweed growing next to the potato patch.

I placed a cage over one of the remaining potato plants and because the ground was so dry and hard, I put a wheelbarrow full of moist potting compost in the bottom of the cage and added the larvae; within ten days they had all pupated.

We left them for two weeks after the last one went down before we dug them up. They were all perfect apart from one which was damaged while being dug up. They had all pupated between two and three inches down in the compost. I kept them at normal room temperature and sprayed them with tepid water from a hand sprayer every three days. On 22nd November, they started to emerge. I know of two more Deaths-head larvae being found in this area during 1991.

In 1990 I had found four larvae of the Humming-bird hawkmoth in the lane — this year the Deaths-head — I wonder what we will find next year?

The amusing twist to this story is that until twelve months ago I lived where Kirt and Gemma now live and had planted every conceivable plant and flower in the garden to attract butterflies and moths and never seemed to attract anything unusual!

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**STICK INSECTS (*PHASMATODEA*, *BACILLIDAE*) FROM ITALY**

by Dr Davide Malavasi (19519)

Via San Faustino, 27-41037 Mirandola (MO) - Italy.

**INTRODUCTION**

Italy can be considered the European country with the highest number of plants and animal species: it is common knowledge, for instance, that in the Maritime Alps, there is the same number of plants that are to be found in the whole of Great Britain.

This is mainly due to the complicated evolutionary events of the Mediterranean basin which made it easy, in the past, for the invasion by many species coming from the Balkans, North Africa and Western Europe to the Italian peninsula (La Greca, 1984).

Among thousands of species of insects living in Italy, some of the most fascinating for their unusual habits are certainly stick insects (Phasmatodea).

**STICK INSECTS LIVING IN ITALY**

Many species of stick insects, some of them discovered only about ten years ago, inhabit the whole peninsula and the offshore islands.

Autochthonous genera belonging to the Bacillidae family are widespread in the Mediterranean Basin and in Madagascar (Bradley and Galil, 1977). These are *Clonopsis* (Pantel) with only one species and *Bacillus* (Latreille) with a number of species. Unlike many tropical species, they are wingless (Chinery, 1985).

These animals are nocturnal and it is very hard to find them away from the bushes where they were born because of their inactivity. The Italian species are very similar and differ from the more tropical only in their eye pigmentation or by the shape of the cerci (see Table 1).

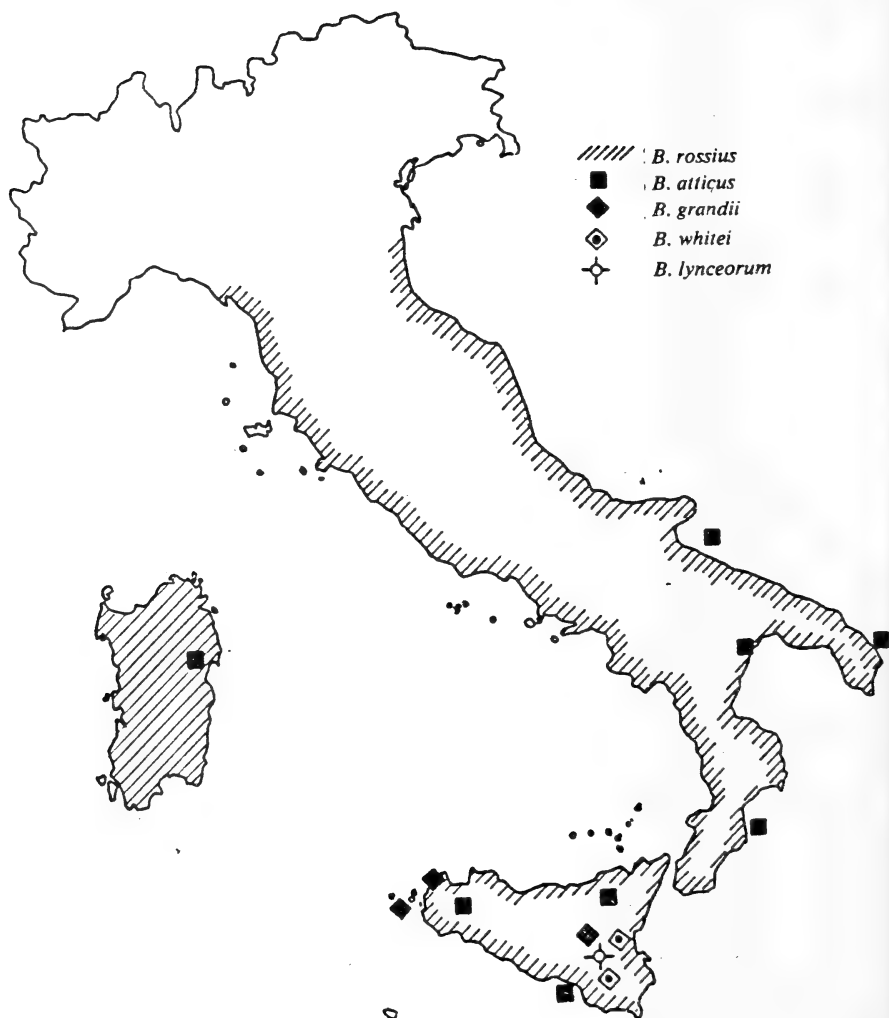
The genus *Bacillus* is holomediterranean, with about ten different taxa.

These insects are herbivorous and feed on various species of blackberry and raspberry bushes (*Rubus idaeus* and *R. ulmifolius*) and on other Rosaceae plants such as whitethorn (*Crataegus monogyna*), pear tree (*Pyrus pyraster*), crab apple tree (*Malus sylvestris*), dog rose (*Rosa canina*), or myrtle (*Myrtus communis*) and on mastic tree (*Pistacia lentiscus*) which belong to the typical mediterranean flora.

**LIST OF ITALIAN SPECIES**

*Bacillus rossius* (Rossi)

This is without any doubt the commonest species, present along all the Tyrrhenian coast and in a large part of Sardinia with the subspecies *B.r.*



*rossius* (Gasperi et al., 1983; Mantovani and Scali, 1989; Mantovani and Scali, 1990) while *B.r. redtenbacheri*, the other Italian subspecies, inhabits all the Adriatic, Ionian and Sicilian coasts (Scali and Mantovani, 1989; Nascetti and Bullini, 1983; Tinti et al., 1990).

This species, as all the *Bacillus* species, is about 10 - 12 cm in length. It is amphigonic with parthenogenetic populations in the whole area. It is interesting that the amphigonic populations feed on mastic tree, while on the contrary the parthenogenetic ones feed on various species of blackberry and raspberry bushes.

*Bacillus atticus* (Brunner)

Besides *B. rossius*, this is the most widespread species and is found in southern Italy, in Sicily and in Sardinia (Nascetti and Bullini, 1982; Mantovani et al., 1990; Mantovani and Scali, 1990). *B. atticus* is parthenogenetic, feeds on mastic tree and has a brown-reddish colour, in contrast to *B. rossius* which has green and brown colours.

*Bacillus grandii*

This taxon, amphigonic and endemic in Sicily, is divided into three sub-species: *B.g. grandii* in south-eastern Sicily; *B.g. benazzii* in north-western Sicily (Scali, 1989 and in prep.) and *B.g. maretimi* (Mantovani and Scali, 1990) which is endemic in the Egadi Isles (Marettimo).

*Bacillus whitei*

This diploid species is telythokous parthenogenetic and is a hybrid between *B. rossius* and *B. grandii* (Nascetti and Bullini, 1982). It is, along with the following one, endemic in Sicily.

*Bacillus lynceorum*

This species is parthenogenetic but triploid and is probably derived from interbreeding processes involving *B. rossius*, *B. atticus* and *B. grandii* (Scali and Mantovani, 1989; Mantovani et al., 1990).

In Sicily another hybrid taxon, named *B. rossius-grandii benazzii*, was found by hybridogenesis (Mantovani et al., 1989; Mantovani and Scali, 1990), the first case among terrestrial invertebrates.

*Clonopsis gallica* (Charpentier)

This species is a little shorter than *Bacillus* species, because it is no longer than 6 - 7 cm. *C. gallica* is parthenogenetic and has an almost superimposable range zone with that of *B. rossius*, although it does colonise inner hilly areas to 600m (Scali, 1982). Its diet includes many Rosaceae, mastic tree, myrtle, heather (*Erica* sp.) and *Phyllirea angustifolia*. It is present, in opposition to *B. rossius* and *B. atticus*, in having only one purely spring hatching (Scali, 1982).

*Carausius morosus* (Br. et Redt.)

This species is indigenous to India but, as in many other European countries, is widely bred in greenhouses and gardens (Chinery, 1985).

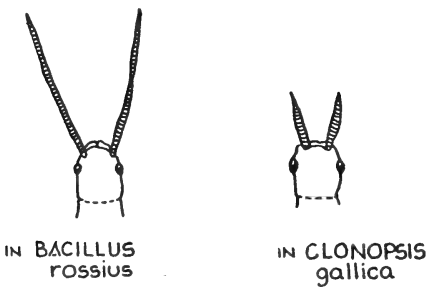
## CAUSES OF THEIR DECLINE

Stick insects belong to the amazing mediterranean coastal biocenosis (which includes 20,000 plant species of which 38 per cent are endemic (Buracchi, 1987). These are now suffering more and more massive aggression from man: many kilometres of coast, covered once by a dense Mediterranean bush, are burnt down by arsonists every summer (Lambertini, 1991); many hundreds more kilometres are continually perverted by the construction of small villas and hotels (in some places urbanisation reaches 92 per cent of available space (Osio, 1987). It is also probable that many stick insect populations are destroyed by hedgerow destruction and poisoned by biocides used in intensive farming.

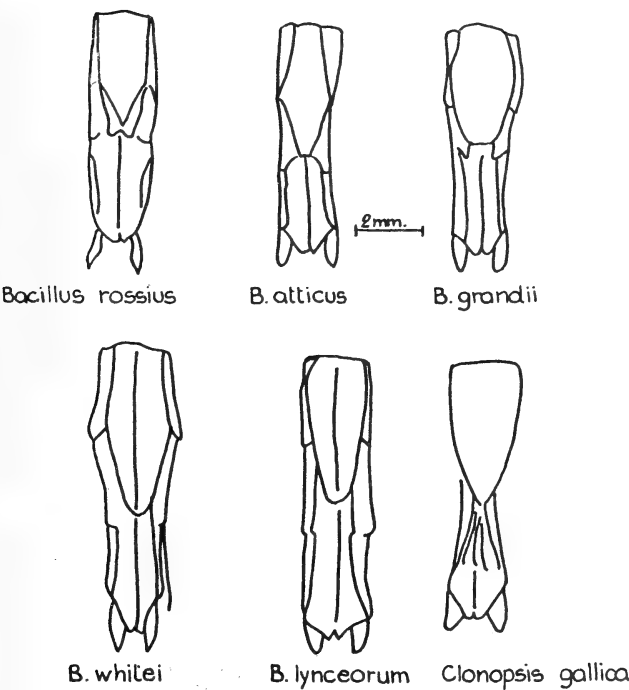
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DIFFERENT LENGTHS OF ANTENNAE  
(REDRAWN FROM CHINERY 1985)



Tab. 1 ABDOMINAL TIP IN *BACILLUS* SPECIES AND  
*CLONOPSIS gallica*. SEE THE DIFFERENT CERCIS  
(MODIFIED BY AGOSTINI)



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## BOOK REVIEW

*British Red Data Books: 3. Invertebrates other than insects.* Ed. J. Bratton. 235pp, hardback. Nature Conservancy Committee. ISBN 873701 00 4. Peterborough, 1991. Price £8.00 including p&p.

It is probably fair to say that the concept of the red data book (RDB) did not meet with instant universal acclaim from people concerned about the plight of the generality of our invertebrate fauna. The sheer numbers of species potentially at risk from habitat damage and destruction can seem so overwhelming that any attempt to list and categorise them may seem at best inadequate and at worst misleading. Although such doubts may still linger, many of us have come to accept that RDBs have considerable value in this imperfect world where the "art of the possible" is better than despair over unattainable ideals. Thus, the existing RDB on British insects has not only provided ammunition for people involved in site protection work; it has, even through its deficiencies, also stimulated new work to improve our knowledge of species at risk and their habitats.

This latest RDB is a most welcome addition to the series. By dealing with non-insect invertebrates, the book is taxonomically quite ambitious since, whereas its companion volume covers the single (albeit uniquely large) Class Insecta in the Phylum Arthropoda, the present volume covers seven different phyla of the Animal Kingdom. Among the groups included are the "non-insect" arthropods like spiders and centipedes, as well as molluscs, sea anemones and flatworms. It is, however, not an exhaustive coverage; for want of information some major groups like the single-celled animals (Protozoa) and threadworms (nematodes) could not be included.

The book starts with a frank and helpful commentary on the patchy state of knowledge on which it is based. Each of the species that earned a place in the list is placed in one of seven categories (e.g. rare, vulnerable, endangered) which correspond to those used in the earlier insect RDB, with one addition: "insufficiently known". The introductory sections also include an update on the listing of legally protected species. Another feature of the book is its pair of indexes for species and for habitat sites.

The bulk of the book is a reference section, consisting of data sheets for the individual species, 144 in total, but this is relieved somewhat by a helpful introduction on the biology of each of the major taxonomic groups. There are also 18 monochrome habitat photographs (rather sombrely reproduced in most cases) which help to emphasise the importance of the plant and animal communities of which the listed species are merely representatives. Each data sheet provides information about the distribution and ecology of the species concerned, together with literature references and notes on its status and on any existing conservation measures. Apart from providing a useful reference for conservation workers, the data sheets should prove quite interesting for the naturalist, although they might have been enlivened by a few descriptive words about the appearance of the animals concerned; perhaps at least stating their size and colour.

The value of the RDB treatment is exemplified by the data sheet on the fairy shrimp, *Chirocephalus diaphanus*; the small seasonal pools which it inhabits have often been filled in for want of recognition of their value as wildlife habitats, and this has happened even on a County Trust reserve. Another possible casualty of ignorance is the spider *Tegeneria picta* which was recorded from only one British site before the area was subjected to a series of explosions while being used as the setting for a film. These are a couple of the highlights in a book which provides a good browse as well as an essential and reasonably priced reference source for anyone involved in invertebrate conservation. DL

## SOME UNUSUAL FOODPLANTS

by P. W. Cribb (2270)

During 1991-92 there appears to have been a population explosion in some districts of the Scarlet tiger moth, *Panaxia dominula*. I visited one locality with our member Colin Davies at the end of May 1992. Here the normal foodplant is Comfrey, *Symphytum officinale*, but we found these plants eaten to the ground and only one or two larvae present, feeding on adjacent stinging nettles, *Urtica dioica*. However, as we walked away from the area we found the willow bushes, *Salix* sp., swarming with the larvae and if one had used a beating tray, one could have gathered hundreds. Further along the pathside we found more larvae feeding on herb bennet, *Geum urbanum*, and bramble, *Rubus* sp.

Also in May in my flower garden I found the seed pods and leaves of honesty, *Lunaria annua*, quite heavily eaten and a search produced larvae of the Orange-tip butterfly, *Anthocharis cardamines*, and of the Large cabbage white, *Pieris brassicae*. Both species continued to feed on the plants and eventually pupated.

## A SEARCH FOR BUTTERFLIES IN TENERIFE

by P.R. Grey (3820)

Coridon, Langton Maltravers, Swanage, Dorset.

Tenerife lies 200 miles north-west of the Sahara coast and 28 degrees north of the Equator. It is a volcanic island thrust up in the Atlantic and the soil is almost entirely ancient lava in which bananas, tomatoes and other crops grow well. The original crater is ten miles across at a height of about 7,000 feet but inside there is a pinnacle of 12,000 feet, named Pico de Teide, which evidently arose from later volcanic activity. There is a hectic motorway along the south coast of the island from the civil airport eastwards to Santa Cruz and over to Puerto de la Cruz on the north coast.

Many of the butterflies in Teneriffe are migrants from either Africa or America but there are several Mediterranean types which over the centuries have become separate species or sub-species. At the end of March 1991 I joined two younger members for a week's intensive search. We based ourselves at Puerto de la Cruz which is now a very busy town with frightening one-way systems and an insoluble parking problem.

The first day dawned with a thick cloud at about 3,000 feet so we decided to flog up to the crater in our half-dead hire-car. We broke cloud into the sunshine at 5,000 feet where a forest of Canary Island pine surrounds the crater; this indigenous tree has triple, eight-inch needles and grey bark, the cones are brown similar to, but smaller than, those of the Stone pine. The only butterfly we could find there was a Painted lady (*Cynthia cardui*) single specimens of which were later to be seen throughout the island.

Inside the crater the landscape was relatively barren with, at that height, a very cool breeze. Near a tourist centre called Parador we found clumps of a purple and white crucifer flower, *Cheiranthus scoparius cinereus*, and we felt certain that this must be the larval foodplant of *Euchloe belemia hesperidum*, a little Green-striped white whose underside differed from the Mediterranean forms. We found about eight males which, at 5pm were beginning to roost for the night.

Except for one fine day, the rest of the week was dull and we literally chased holes in the cloud in various lower parts of the island. Under such conditions we considered ourselves fortunate in finding so many different butterflies.

**PIERIDAE:** Apart from the *belemia* species mentioned before, we found a few Clouded yellows (*Colias croceus*) and one tatty male *Catopsilia florella* which flies like a Brimstone but has square tips to its forewings; both of these are migrants from Africa. A local form of Mediterranean



Brimstone was also present (*Gonepteryx cleopatra cleobule*) which has a less extreme orange colour in the forewings of the male.

The Large and Small whites were both observed to use *Nasturtium* as their larval foodplant; the Small white (*Pieris rapae*) appeared no different from ours in Britain but the local Large white (*P. brassicae cheiranthi*) was dramatically different, the twin spots on the forewing of the female being larger and fused together; this was distinctly noticeable in flight. Some males had a vestigial spot on the upper side of their forewings and the two spots beneath fused together in the female. The species was seen in gardens, nectaring particularly on Statice, as well as on roadside and farmland weeds.

**SATYRINAE:** The only Brown we saw was the Canary Speckled wood (*Pararge xiphioides*) which lacks the concave forewing outer margin of the Mediterranean species and has richer and more variable orange spots; the other distinguishing feature was the bright white costal mark beneath the hindwings. The butterfly was common in semi-shaded places.

**HESPERIIDAE:** In a neglected terraced field on the north coast near Buenavista we came across a few fresh specimens of the local Lulworth skipper (*Thymelicus acteon christi*) with an interesting white stripe on their undersides. These were in company with several Speckled woods and Small whites.

**LYCAENIDAE:** The indigenous Canary blue (*Cyclirius webbianus*) was seen first on neglected farmland then later in a small limestone area near the south coast at Poris; here it was laying eggs on a yellow pea plant similar to Bird's-foot-trefoil but in other places it chose another plant of the same family resembling broom. The female is orange-brown and looks rather like a Small heath but the male is violet-blue on the uppersides.

We could find only one specimen each of the migrant blues, both of which are found all over Africa and find their way into Europe. The one Long-tailed blue (*Lampides boeticus*) was a very worn male but the African grass blue (*Zizeeria knysna*) was a fresh male, slightly larger and with more pointed forewings than those I have photographed in Africa. We saw also two Southern brown argus (*Aricia cramera*), one was a female ovipositing on a weed of the geranium family.

A few Small coppers (*Lycaena phlaeas*) we saw appeared no different from European specimens. None had the blue spot variation (*punctata*) so familiar in the Mediterranean region.

**DANAINAE:** Single specimens of the American monarch (*Danaus plexippus*) were seen all over the island; it is well established and

evidently has adapted to local larval foodplants. The presence of the African Monarch (*D. chrysippus*) would have seemed even more reasonable but we saw none of these.

**NYMPHALINAE:** The Painted lady (*Cynthia cardui*) has already been mentioned but we failed to see the American painted lady (*C. virginensis*) although I have seen this species on Gran Canaria.

Our friend the Red admiral (*Vanessa atalanta*) was widespread and in fair numbers but, despite our enthusiasm over the Canary Large white, the most exciting butterfly of all was the Indian Red admiral (*Vanessa indica vulcania*), slightly larger than *atalanta* with a broader broken bar of red on the forewings even richer in colour.

Our best observations of the females of both Red admirals were in a narrow strip of cultivated but neglected ground in a valley near the sea at Socorro on the north coast where *indica* was laying only on a small perennial stinging nettle whereas *atalanta* laid solely on a ground weed resembling pellitory. At about 5 pm in evening sunshine we watched three male *indica* fighting over territory in the grounds of a hotel.

All of the butterflies mentioned are illustrated in *Butterflies of Britain and Europe* by Higgins and Riley, but there is further work to be done on the ecology and the larval foodplants.

## NEW INSECT STUDY SOURCEBOOK AVAILABLE

The Y.E.S. International Entomology Resource Guide (Fourth Edition), which has been updated, expanded and revised (with an emphasis on insect study through educational resources and materials), has been an indispensable source of information for teachers (science, biology and environmental education), librarians, extension agents, consultants, naturalists, professional entomologists, insect collectors and breeders, and insect enthusiasts of all ages.

Important features of this 95-page guide: lists over 1175 businesses, organisations and individuals (worldwide) who offer insect study products and services; listings and display ads in 16 major resource and service categories (163 subcategories); all listings complete with name, address and telephone number(s); and, includes the world's most comprehensive list of insect zoos, butterfly houses, and entomological organisations. All of this information comes to you for the low price of \$13.00 (American) postpaid by airmail. Send for yours today! Mail order and payment to Young Entomologists' Society, Dept. RGN, 1915 Peggy Place, Lansing, MI 48910-2553, USA.

### **JUNIOR SECTION No. 3**

*by Darren Mann (8181)*

It would appear, looking at the "history" of the AES organised Junior Fieldweeks/weekends that they only happen every couple of years (i.e. 1984, '86, '88 and now 1991). Could this apparent two-year cycle be caused by extraterrestrial forces? Or maybe some strange astrological influence? I think not. A theory more down to earth could be that it takes the organisers (i.e. Duncan Reavey (6934) 1984, '86 and '88, and myself 1988 and '91) a couple of years to recover from such an ordeal. Anyway, whatever the reasons, it is hoped that this trend will not continue.

If any junior would like to see a Fieldweek/weekend held in their area, write to me at the address in the front of the *Bulletin*, with information on your area and reasons why you think your area would be a good place for a Fieldweek/weekend.

### **THE 1991 AES JUNIOR FIELDWEEK**

*INTRODUCTION by Darren J. Mann (8181)*

It was in the early hours of 7th April, after spending the day at the Young Entomologists' Scheme workshop, when I decided to run a Fieldweekend for the AES. I think that by about 3.00am I had come to a decision about the sites we were going to visit and who I needed to ask for help. The invitations along with a few other bits (the questionnaire) were sent out to all the known junior members of the AES, and from that, ten young enthusiasts spent a weekend looking at "bugs".

Once again we returned to Coventry. What for!? I hear you say. Well to be quite honest, for convenience' sake. I was intending to travel abroad at the end of July and so I was only able to organise a venue close to home and only for the period of a weekend.

On Friday the 19th a few new faces along with some not so new arrived at Coombe Abbey Park to spend a couple of days being field entomologists. I hoped that all attending would be able to learn some new techniques, to become aware of other invertebrate groups, or just to have some fun with other "weirdos" (as one lady I met thought we were!).

### **COOMBE ABBEY COUNTRYSIDE PARK**

*by Dion Battersby (8947J)*

We returned once again to the site of the '88 Fieldweek, but this time the area that we were camped in was more secluded and picturesque.

### THE GANG

Top left: Andrew Salisbury, Ben Woodcock, Richard Knight, Anna Knight, Marianne ("Gran") Battersby, Darren Mann.

Middle row left: Neil Grant, Anna Bonsall, Dian Battersby.

Bottom row left: Vicky Jackson, Anna Waitworth, Joe ("I'm not Welsh") Parker, Matthew Hogg.

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Within a five-minute walk of the tents one could find pseudoscorpions and beetle larvae in old logs (which were very heavy!: DJM) and various species of Hymenoptera (bees, wasps etc), including some interesting solitary wasps, not to mention many species of Diptera (flies) and Coleoptera (beetles).

The mercury vapour moth trap we set up at the site was rather disappointing, except for the Poplar and Elephant hawkmoths. We also used some sugaring solution that was smeared on the nearby trees producing very little, except sticky fingers (and a hangover for Ben and Andrew: DJM).

Although we did not find the park as entomologically productive as the other sites we visited, it made a nice base to travel from.

### MOTH TRAPPING

*by Mathew Hogg (9065J)*

It was around 9.00pm at Coombe Abbey and after a long discussion we decided to put the moth trap out near the tents. I had never seen one before, except in books. I thought it looked so simple and yet it was so effective. That night we caught about twenty species of moths, the most frequent being the Common footman (*Lithosia lurideola*). Unfortunately about 10.30pm the light went out because the generator had broken down.

The next day Darren's dad came to Coombe and mended the generator for the coming evening session — this time it was going to a different site. It was when we were half way to Ryton Wood that Darren asked the question: Where's the trap?! Everybody looked under their seats, but failed to find it. (I'm *sure* I asked someone to put it in the van: DJM). This meant that we had to go back to camp and pick up the trap!

Fortunately we managed to get to the site in time, and stayed until 3.00am (at which point all but the hardest juniors were asleep in, on, or at least near, the minibus: DJM). We had a tremendous time. At the site was Mr Roger Kendrick of Warwickshire Nature Conservation Trust, who had set up three of his own traps and in these there were more Common footmen ranging to things like Poplar hawkmoths (*Laothoe populi*) and loads more. Joe and I caught a Poplar hawk each, and quite



Fig. 1. The Gang. For names see text.

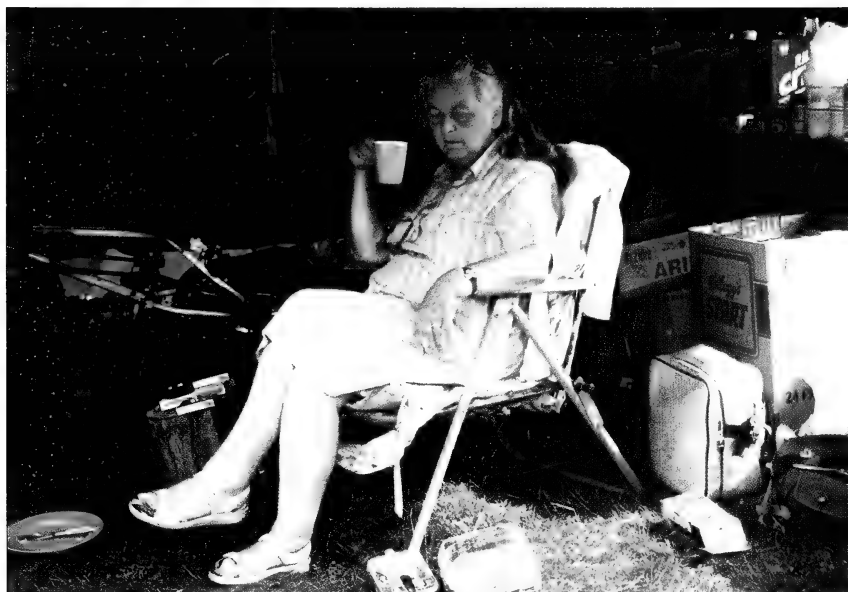


Fig. 2. "40 Winks". "Gran" at Coombe in the Mess(y) tent.



Fig. 3. Andrew testing his "water-proof" trainers. Ryton wood SSSI.



Fig. 4. "Come back Rover". Vicky at Ryton wood SSSI.



Fig. 5. Joe and Mathew at play in the dung. Stonebridge meadows LNR.



Fig. 6. "Who threw that!". Neil with a sweepnet at Stonebridge meadows LNR.



Fig. 7. Tony "Sir" catches the biggest bug of the day. Stonebridge meadows LNR.



Fig. 8. The sawfly *Abia sericea* ready for take-off at Stonebridge meadows LNR.



a few people caught hornets (*Vespa crabro*) (not forgetting PERCY — the beetle with no name: DJM).

## **SATURDAY 20th, STRATFORD-UPON-AVON BUTTERFLY FARM**

*by Joe Parker (9002J)*

We arrived at the Stratford-upon-Avon Butterfly Farm mid-morning on Saturday. We all went in apart from Darren and a few others who stayed outside to catch insects (excuse me, but I had some shopping to do, *then* we went collecting!: DJM).

The first thing we did when we got in was to have a talk to a man who worked there about Lepidoptera (butterflies and moths). When that was over we had a guided tour of the Butterfly Farm. Two other gum-chewing people who were nothing to do with us joined in. Mathew and I both took some dead specimens from the windowsill in the room behind Insect City. I took a scorpion which I set and gave to my teacher as a present when I left school. Then the man let us go around the Butterfly Farm by ourselves. There were some *Pachnoda* beetles for sale and so Mathew and I bought some. The farm is quite good but a lot of the space in the flight area is taken up by ponds and flowing water. In some parts there are lizards which roam freely amongst the butterflies and sometimes eat them if they get the chance.

My favourite part is the Insect City. That's where I think the best insects were, such as mantids, beetles, ants, locusts, katydids and stick insects. It also houses some arachnids like scorpions, tarantulas and the black widow. Once we had come out of the butterfly farm we had lunch. Neil had brought a mantid from the farm and was showing it off outside. He opened the container it was in, and the creature flew up into a tree and we couldn't get it back! After lunch we set off to go somewhere else. (P.S. I'm not WELSH.)

## **SNITTERSFIELD BUSHES**

*by Ben Woodcock (8938J)*

On the Saturday afternoon we arrived at Snittersfield Bushes. At first sight it appeared to be mainly wooded, but it proved to have several other good habitats. These included overgrown fields, areas of shrubs and grassland, ponds, and of course the various micro-habitats within the wood.

The wood was divided by a road: we began our fieldwork on the southern half of the wood. A large proportion of the fieldwork was carried out at the edge of the wood as the day was hot, and so conditions favoured the open. Fieldwork in this area produced some good species,

like the ladybird *Adonia variegata*, a notable class "B" which was swept. The leaf beetle *Chalcoides nitidula* a notable class "A", was found by beating the aspen trees.

The sloebug *Dolycoris baccarum*, an uncommon species of shieldbug in Warwickshire was swept; also recorded were many species of hoverflies (Diptera: Syrphidae).

The northern half of the wood (which was noticeably more productive, as it was being managed by WARNACT: DJM), had wider paths and just past the woods were a series of shallow pools. These were filled with reeds and sedges. Around the pools the ground was sandy and so very good for solitary wasps. There were also areas of dried mud, which had cracked. In and around these cracks were lots of ground beetles, such as *Bembidion* species. I caught specimens of the leaf beetle *Cryptocephalus moraei* which is a notable class "B" and believed to be the first record for Warwickshire.

Overall, the day was very good, with my personal tally of approximately 25 species of beetle and 14 species of hoverfly.

## SUNDAY 21st. AM. STONEBRIDGE MEADOWS

by Andrew Salisbury (8478J)

It was a warm Sunday morning as we descended upon Stonebridge Meadows Local Nature Reserve, an interesting site, grazed by horses, bordered by the river Sow, a main road and a few school fields.

The group soon dispersed over the site, sweeping almost all the vegetation. Darren did his utmost to catch every fly and sawfly on the site. This site produced many interesting insects, and also the largest field list of the weekend — for me at least.

One beetle of note was *Phyllobrotica 4-punctata* (and of course some interesting sawflies, such as *Tenthredo scrophylaria* and, shown on Plate L, Fig. 8, *Abia sericea*: DJM).

At about 12.30 we stopped for lunch; within minutes we were surrounded by the resident horses, which started to pester us, and were very difficult to move out of our way (especially with certain juniors feeding them unwanted sandwiches).

We left the site after lunch, and started for Ryton Woods SSSI, most of us being happy with what we had seen and caught.

## SUNDAY 21st. PM. RYTON WOOD SSSI

by Vicky Jackson (8994J)

On Sunday afternoon we went to Ryton Wood, a Site of Special Scientific Interest (SSSI), which was not far from Coombe. We all

clambered out of the minibus and followed a not-so-confident Andrew to find a pond. Which he did — Plate J, Fig. 3.

After spending some time splashing about at the perimeter of the pond, most of the group disappeared into the woodland, in search of beetles. Those of us who were left decided to take a well earned rest: not so Darren (as heard on Radio 4's Midweek!) Mann.

Darren decided to wade into the pond to catch a dragonfly (the Brown hawker *Aeschna grandis*) but on returning to the bank he spent more time hunting his trousers, which a local expert in such matters, Tony Barlow, had (re)moved.

After all this excitement it was time to return to the minibus and gather all of the stragglers. A memorable day, even if not particularly notable for its entomology!

## MONDAY 22nd JULY. AM.

*by Neil Grant (8906J)*

On Monday morning we went to the Herbert Art Gallery and Museum in Coventry. There we met Mr Steven Falk, who was the acting Senior Keeper of Natural History. He told us a little about the Natural History section of the Museum. We were then split into two groups: the first had a go with the microscopes and then at setting insects which they had caught during the weekend. The insects (beetles and true bugs) were set on a piece of card. We had then to write all the information about the insect on the card, such as where it was caught, who caught it and what its name was.

After this the groups swapped around and we went to have a look at the collection of insects which were all in drawer cabinets. We had a look at the Mr Ken Greenwood collection of Lepidoptera which had both native specimens and some from abroad. The colours of some of the specimens really stood out.

## ACKNOWLEDGEMENTS

*by Darren J. Mann (8181)*

Well, that's another Junior Field trip over with. All that remains is for me to thank those people involved, without whom it could not have run so smoothly (ha ha!).

Marrianne ("Gran") Battersby (Plate I, Fig. 2), who braved the continuous onslaught of horseflies at the campsite, to keep us all fed and clean (well, nearly all of us), Anna and Richard Knight, who managed to drive the minibus to all the correct sites, despite my directions. Mike ("Bonzo") Bonsall, without whom the initial invitations to juniors

would not have gone ahead, and also for his invaluable help throughout the entire weekend. Tony ("Sir") Barlow (Plate L, Fig. 7) who, undeterred by his 1988 Fieldweek appearance, came back for more and spent almost all of the weekend with us, and helped identify (or at least try) the constant flow of tubed insects from the "Brats".

I think that Mr Richard Lamb, manager of the Stratford-upon-Avon Butterfly Farm, deserves a big thank you for allowing ten young (usually destructive) entomologists into his Butterfly Farm. A very brave man, as not only did he allow them in, but also gave a guided walk and a talk.

Thanks must also be given to the following: Dean Warren, for his moth-trapping help at Ryton Wood SSSI; Warwickshire Nature Conservation Trust (WARNACT) for allowing access to their sites; Mr Roger Kendrick of WARNACT for his help at the Ryton Wood moth trapping session; Steven Falk of the Herbert Art Gallery and Museum, Coventry for allowing access to the Museum collections; and to the Council who sponsored the hire of the Minibus, thus keeping the weekend affordable.

A special thanks to the Rangers at Coombe Abbey Countryside Park, near Coventry (the campsite) especially Murray Hayden, for the loan of equipment and for putting up with the AES "Brats" a second time.

Last, but definitely not least, I would like to thank all those juniors who attended, namely, Dion Battersby, Neil Grant, Mathew Hogg, Vicky Jackson, Guy Knight, Joe Parker, Andrew Salisbury, Ben Woodcock, Anna Waitworth, and especially Caroline Willmot, who kept an eye on the younger "Brats" when no-one else would, and also provided the Fieldweek article with all the photographs.

I hope that this Fieldweekend was of interest to all of you, and I look forward to seeing you on future fieldtrips.

## **SCARLET TIGER MOTH IN BEXLEY, KENT**

*by Mike Halpin (1957)*

At 5am on 30th June I checked my MV light trap to find a Scarlet tiger moth (*Callimorpha dominula*), on one of the egg boxes around the base of it. I have made enquiries from friends and at local schools but can find nobody who has been breeding them.

We live close to a small stream (River Shuttle), separated from us by waste ground and, to the rear, are school playing fields, woods and a golf course.

I would be interested to hear of any other sightings or if anybody locally has been breeding them.

## A BRIEF OVERVIEW OF SOME EUROPEAN MANTIDS

by Philip Mellow (6089)

10 Sir Alexander Close, Acton, London W3 7RJ.

The praying mantids, or mantis, are a fascinating family of insects, most of which can be kept quite easily as pets. Here I'd like to mention a few that I have seen on my travels through Europe, and how I found them.

### *MANTIS RELIGIOSA*

Probably the most widespread. I have seen them in Oporto and the Algarve, north-east Spain, south Italy and Corfu. The adult males are most frequently seen attracted to lights at night but the females need more searching to find. Vegetation around fresh water, isolated shrubs and bushes are good places to look. They are sometimes seen walking on the ground in the early morning and at dusk, but the commonest place I have found them is under logs! Look for the felled olive trees, etc that are raised from the ground, or are hollow underneath. The females are often hiding there, hanging upside down. I frequently find their oothecae here too, and sometimes even under rocks that quite firmly hold the ground too. Quite how they get themselves under them to oviposit I do not know! If you have a male and a female at the same time, mating them is easy. Place a female on a curtain and wait until she settles down. Take your male, who should have been previously handled so that he doesn't panic too much, and with him on your hand slowly bring him up a few inches behind the female. When you know he has seen her, which he will show by staring at her with quivering antennae, then you should place him down a few inches behind her, then leave them well alone. After a while he will approach her and with a hop will mount her. After a couple of hours, or perhaps longer, he will quickly leap away and flee! If the female is well fed she doesn't usually eat the male if he has room to escape.

The adults of this species come in various shades of straw, grey, light or dark brown or a bright green. They grow up to about 3" and can be found (as adults) from late summer up to about Christmas time. I have frequently found the nymphs in reeds, etc around water. Occasionally the adults can be found in "patches", i.e. a small area of land will contain dozens of individuals, although they are very cannibalistic!

### *IRIS ORATORIA*

This species is similar to, although a little smaller than, *religiosa*. The males frequently come to light, but I have most frequently found the females and nymphs amongst the flowers of tall growing plants such as fennel. Both sexes have an interesting defence strategy. They hide

amongst the flowers and stems and will swing themselves behind a stem if they can, so that they are harder to see. If detection is impossible they will gamely stand their ground with forearms raised at right angles. If you go to pick them up they raise their forewings and spread their hindwings vertically to reveal large, iridescent peacock-eye patterns whilst rubbing their abdomens on their wings to make a hissing sound. Most surprising when first seen! Incidentally the males have normal, functional wings whilst the females have wings only about halfway down their bodies. They are found in either a light brown or lime green colour. I have never got them to mate in captivity. The females may be found on rocks and walls in the evenings, where they deposit their oothecae. This is quite a voracious species for its size, and frequently eats wasps and bees which *religiosa* often ignores unless starving. When I was in the Algarve recently (*oratoria* is distributed in south-west Europe) I found them abundantly on roadside vegetation and happened to observe a female eating a large bee. A swarm of small flies, superficially resembling black *Drosophila*, were buzzing around apparently sipping the juices exuding from the bee. They actively flew and ran around the mantis who, although intently eating her prey, also seemed to resent their presence and occasionally shook herself, and the bee, but after a moment's respite, the flies would be back!

### THE EMPUSA GROUP

I use the term guardedly due to some disagreement in the literature, but it is usual to accept that the western European species, which has a crest, is *pennata* and the eastern European species is *fasciata*. Whatever the name, this is an unusual mantis! Imagine some sprigs of dried heather arranged in a mantis shape and you have an idea of what this species looks like. . . . The nymphs are extremely cryptically-patterned and shaped which makes detection difficult. I have found isolated nymphs hiding under logs in the Algarve, but in north-east Spain I found them in small "herds" running through the grass. (The nymphs that is, not me!) They are extremely spindly and even when adult prefer small flies etc. They get up to about 3" long as adults, but much less robust than other species of similar length, and I have also found them to be "delicate" in captivity. They differ from other European mantis in their life cycle too. All the others hatch from oothecae in the spring or early summer and grow up over the summer to oviposit in the late summer/autumn/early winter and then the cycle begins again in the following spring. Apparently the *Empusa* hatch in the summer and pass the autumn/winter as nymphs, feeding in suitable weather, to become adult in the spring and oviposit oothecae which hatch a few weeks later.

### THE AMELES GROUP

Please accept the "group" title as there are a group of small species resembling each other. Generally the males are winged and the females wingless, and some of them are now assigned to other genera, but as I don't have a lot to say about them I won't say any more about the nomenclature here. Suffice it to say you can find them in the grass in late summer. I have seen dozens of males in the Greek olive groves in July. Walk slowly across the grass with the sun behind you and they will hop-fly from your shadow as it falls across them. Apparently they are common on the Balearic Isles. They grow up to about 1" long.

The above are species I have seen myself. There *are* other species, but I would like to mention only one, *Sphodromantis viridis*. I have heard time and again that this species, resembling a massive *religiosa*, is to be found in south-west Europe. Can anyone confirm this? I have searched high and low for it. When I was in Morocco on a day trip from Gibraltar I found one male, but I have never seen a European one!

If you find a mantis on your travels and wish to keep it as a pet here are a few tips. These apply to European mantis only, more exotic mantis may need pampering. Keeping them in the field (usually your hotel room!) is easy . . . cut down an empty mineral water bottle and you have a suitable small container. To bring them back home, put them *separately* (!) into empty cigarette packets and they'll travel safely in your coat pocket. If you're serious you can take a supply of polystyrene cups and lids and use these. These are also good for collecting various mini-beasts such as caterpillars, etc, because they are insulated. Very useful if it's very hot. You can buy them in "cash and carry" stores, etc, or take along an insulated bag, costing less than £2, as used by shoppers to carry home frozen food.

Back at home house them in suitable jars, tanks, terrariums, etc. All they need is a twig to rest on, but for aesthetic purposes you can line the base with paper or peat. Most mantis are easy to keep, needing only a steady supply of suitably sized live insect food. They don't need drinking water although a pad of moist cotton wool doesn't go amiss if they are preparing for a moult as nymphs. A muslin lid will serve as a suitable hanging post for the mantis as well as keeping it in! The containers used need not be over large — a small mantis in a large container may actually have a long wait for the live food to come close enough to grab. . . .

Their droppings are dry pellets and so "cleaning out" is not a worry. Normal room temperatures are adequate.

For more detailed information consult George Heath's excellent AES leaflet on keeping mantids. *Happy Hunting!*

## BOOK REVIEW

*Rearing and Studying Stick and Leaf-insects* by Paul Brock. A5, pp79, 40 Figs., 7 monochrome plates. AES 1992. Price £5.00.

Ever since I bought a copy of *The Phasmid Rearer's Handbook* by Paul Brock in 1988, I have always kept it within reach on my desk, so that it would be readily available in times of need. There have been many such times, like when a perfectly healthy-looking *Carausius alluaudi* nymph failed to moult properly and died, entangled in its partly-shed skin. Another unpleasant occasion was when several prize *Phyllium bioculatum* nymphs refused to feed and apparently starved to death. Then there was the time most of my *C. seychellensis* nymphs were hatching with their hind legs trapped inside their egg-cases. Each time, I turned to the Handbook and found the information and advice I needed to solve the problem, or at least make sure it did not happen again.

When an updated version of the Handbook, *Rearing and Studying Stick and Leaf-insects* was published recently, I was naturally very curious to find out to what extent it was different from, and better than, its predecessor. The first obvious difference is that the bland grey cover of the Handbook has been replaced by a much more attractive cover in two shades of green. The cover illustrations are more representative of the order Phasmatodea — the original female leaf insect (*P. bioculatum*) has now been joined by a stick-insect (*Bacillus rossius*).

More importantly, the number of pages has increased from 41 to 73; in other words, there are 32 more pages of information and illustrations. One of the many new features that were not part of the original is an introductory section on taxonomy, together with notes on the major works that have been published on phasmids. It is interesting to read that only two species were described by the great Swedish naturalist Carolus Linnaeus in his *Systema Naturae* of 1758, on which the modern method of naming animals (binomial nomenclature) is based. Today some 2,500 species have been described. Brock notes that very little is known about many (if not most) species, and points out that "the newcomer can easily break new ground in noting unusual behaviour, etc, when breeding species."

After a short section on morphology, complete with drawings showing the "parts" of a stick-insect, there are notes on the life history of phasmids and their development, and information on predators, parasites and diseases. The threat posed by alien predators introduced by man into the native habitats of phasmids is illustrated by the case of the Lord Howe island stick-insect *Dryococelus australis*, which has been practically exterminated by the rats introduced from a grounded ship in 1918.



The next part of the book is devoted to the rearing of phasmids in captivity. Here Brock repeats the information contained in the original Handbook, but there are several new figures, including drawings of the eggs of no less than 55 species (!), as well as one illustrating the general structure of the phasmid egg. Moreover, temperatures previously given only in Fahrenheit now have their Celsius equivalents!

The highlight of the new book, though, is the far more extensive coverage of individual species. Apart from the laboratory or Indian stick-insect (*Carausius morosus*), which is used to illustrate the general principles of phasmid biology, there are detailed notes on 15 species (twice as many as before) that are easy to rear and therefore suitable for "beginners". Information is given under the following headings: culture history, distribution, description, foodplants, culture information, and behaviour. There are line drawings of 14 of the 15 species (the 15th is shown in a black-and-white photograph).

Next the author moves on to leaf-insects (*Phyllium* spp.). A list of species being bred in Europe by phasmid enthusiasts is given, followed by notes under the same headings as those used previously for stick-insects. Unfortunately, the biology of leaf-insects is still not fully understood, and the rearing of these insects outside the tropics is still plagued with problems.

*The Phasmid Rearer's Handbook* had nearly seven pages of notes and drawings on 22 "Other species", i.e. those not featured in the more detailed section. In the new book, five of these are covered by the detailed notes, and data is summarised for no less than 58 "other" species. This section, totalling 17 pages of text and illustrations, includes information on size, geographical origins of the culture stock, and foodplants. I was pleased to see that four *Carausis* species and *Graeffea seychellensis* from the Seychelles islands, where I live, are included!

Finally, there are hints on how to find and collect stick-insects in the wild, how to transport live specimens from one country to another (import/export regulations permitting!), how to preserve dead specimens, and how to photograph phasmids. The issue of phasmid conservation is not neglected: the author recommends that "common sense should prevail" and that only a short series of each species should be collected.

The book ends with a short glossary, a directory of "livestock" suppliers, and a bibliography listing books and papers for further reading.

Paul Brock has already earned for himself a solid reputation as one of the leading popularisers of phasmids with his earlier publications, which include *Stick Insects of Britain, Europe and the Mediterranean* (1991) as

well as *The Phasmid Rearer's Handbook*, not to mention papers in various journals. When *Calynda brocki* was named after him, phasmid-lovers everywhere saw this as a well-deserved tribute. Brock's irrepressible fondness for stick- and leaf-insects permeates this new book too, and is bound to inspire a whole new generation of phasmid-ologists.

Pat Matyot

## MORE THAN EXPECTED

by Mike Bonsall (9169)

On a recent expedition from Imperial College (University of London) to Ecuador, I had the opportunity to spend two weeks at a biological reserve in the Amazon Basin.

From here surveys were conducted on the non-domiciliary species of cockroaches (Blattodea) as part of the expedition projects. Techniques for collecting included leaf litter searches, night searches of vegetation and pit-fall trapping.

Thirty pit-fall traps were placed in appropriate sites throughout the forest of the reserve. These were buried so that the lip of the trap was level with the ground and baited with a dried fish bait dissolved in water.

The traps were emptied daily and caught many cockroaches in the sub-families Epilamptinae, Blattellinae and Nyctoborinae. Dung beetles (Scarabeoidea) were also very numerous.

Probably the most unusual find throughout the trapping period was *Morpho didius*. This large blue butterfly not seen to be abundant in the trapping area, was probably attracted by the colour of the bait. During feeding it had become wedged within the trap and was unable to escape. On releasing the butterfly it was soon able to recover and rapidly disappeared into the forest.

## THE SPECKLED WOOD IN WORCESTERSHIRE

by Peggy Pittkin

I was interested in the article on the Speckled wood (*Pararge aegeria*) in *Bulletin* 50: 91. I have, for the past 30 years, kept a record of all flora and fauna seen within a mile of my house here in Eckington. Since 1961 there have been Speckled wood butterflies in my three-quarter acre copse which forms part of my six acres adjoining the river Avon. The first flight is usually in July and as the season progresses they increase in numbers and come into my sunny garden. In the last two years they have increased in such numbers as to be quite prolific on the western side of the copse.

## BOOK REVIEW

*The Butterflies of Kenya and Their Natural History* by Torben Larsen. Small 4to, pp. xxii + 490, 64 colour plates. ISBN 0 19 854001 6. Oxford University Press 1991. Price £85.

This is the first comprehensive guide to the butterflies of an African State and does the subject proud, illustrating the over 850 species of butterfly to be found in Kenya on 64 fine colour plates and emanates from the word-processor of a well-known entomologist and author, who has not merely been concerned in writing a taxonomic work, but, from both his own extended field work and extensive library research, has brought together a wealth of data concerning the biology of many of the species. This includes details of the complex relationships between Lycaenid larvae and other insects such as their ant hosts.

The book is divided into two parts, the first, of a biological and "natural history" nature, occupying the first 100 pages of the book. This section contains chapters on the early stages, the behaviour of butterflies (such as mating habits, feeding preferences), dimorphism, polymorphism, migration, the status of some species as pests, their predators and methods used to avoid them (mimicry, distastefulness), and biogeography. The relationship of Kenyan butterflies with those occurring in other faunal areas is discussed. Dr Larsen has divided the geographical area into a number of sub-regions and describes the principal species that characterise them. Kenya is a large area with many climatic zones and it is perhaps not surprising that some palaearctic species such as our Small copper (*Lycaena phlaeas*) occur at 3000m in the Alpine region. Being more used to regarding the "whites" and Nymphalids as the commonest migrants, it may come as a surprise to learn that in Kenya a number of skippers (Hesperiidae) are represented in this category. Part I also contains a phylogenetic tree (following Vane-Wright & Ackery rather than American authors), a glossary and finally a gazetteer of the localities mentioned in the text. A necessary item, this, as many of the places are unlikely to be found on maps of the country and it is admitted that some place-names on old specimens cannot now be traced.

Part II, the bulk of the work, details the species, many of which are sub-species and are therefore given trinomial scientific names. In many instances the English vernacular name is also given where a species is known to have one. For each species there is a general morphological description, but no genitalia illustrations are given. While many of the species may perhaps be identified by their description and illustration on the plates, many species of the Lycaenidae, Acraeinae, Hesperiidae and indeed of the genus *Neptis* are so similar that I feel accurate identification without genitalia examination cannot for critical and similar species, often subject to variation, be reliable. Where known,

foodplants are noted. Considerable space is devoted to habits, this information being drawn both from the author's own extensive observations and literature searches. It is a tribute to his diligence how many of these observations are from his personal experience. The distribution in Kenya and surrounding area is given. A general discussion is given for each family, sub-family and genus.

There is an extensive bibliography of over 250 references, an index of the English names and an extensive scientific index with the species in it being usefully listed under each genus as well as separately.

All the species are illustrated on the 64 coloured plates, most being represented with both male, female and underside. In order to save space many, the larger species in particular, are shown on one side only. The background is a medium blue, and while background colour on plates is a matter of subjective opinion, I find them easy on the eye and without the glare (and loss of outline in pale species) often experienced with glossy white backgrounds. The most useful innovation is that all species are numbered in the text from 1 to 871 and this numbering is carried through the Plates, with i, ii, iii, being used for males, females and undersides. This enables instant reference to the figures when using the text.

As to be expected from OUP, this is a quality production, well printed and bound in their standard navy cloth. Not a book for browsing but good solid stuff and clearly a lot of very hard work has gone into it and the standard is consistently high. One cannot expect, with nearly a thousand species, the details that occur in any book on the handful of British butterflies, but this book lays the foundation for further work on the butterflies of Central, indeed perhaps all, of Africa south of the Sahara and deserves to have a wide circulation. GKS

## **TOOTHLESS AND INEFFECTUAL — THE WILDLIFE & COUNTRYSIDE ACT**

In a recent ruling the House of Lords overturned the verdict of a lower court and declared that a regional water authority could not be found guilty of destroying an SSSI on the grounds that they were not the owners thereof but had merely been acting at the behest of the actual owners who had wanted the site, a waterway, cleared. Other cases have arisen in which sites have been bulldozed clear in order that, since there is nothing left on the site to conserve, there can be no excuse for refusal of planning permission, which, previously refused, has then been granted, generally on appeal to London, many local Councils having tried their hardest to uphold the spirit of the Wildlife & Countryside Act but finding it toothless to help them. It is also against the spirit and intention

of the Act that Government takes these *faites accompli* for granted instead of automatically refusing planning permission and ordering the site to be restored, as far as possible that is, at the expense of the owner or bulldozing firm who carried out the destruction. One reason for this could be that Government does not have clean fingers, being itself a destroyer of SSSIs when it suits its convenience. Witness Twyford Down and Oxleas Wood.

## THE RE-DISCOVERY OF THE SCARCE CHASER (*LIBELLULA FULVA*) IN KENT

by M.G. Pennington (9799)

9 Daisy Park, Baltasound, Unst, Shetland ZE2 9EA.

In 1985 I was working at the Sandwich Bay Bird Observatory in Kent. One day in June, Alison Borlase, who was also working at the observatory, returned from the newly-initiated dragonfly transect to report having seen an unusual bright blue dragonfly holding territory not far from the observatory. We went out to catch it, which we did eventually (just as we were about to give up). Once caught we could confirm the identity of the insect as a male Scarce chaser (*Libellula fulva*). We took it back to the observatory where I obtained photographs before it was released. Further males were found holding territory later in the summer, and the species was certainly still present there the next year, and as far as I am aware, they have been sighted each year since.

According to the maps in Hammond (1983, *The Dragonflies of Great Britain and Ireland*), the Scarce chaser had not been recorded in this locality since before 1960, and I am prompted to write this short note as this interesting discovery is not, to my knowledge, well-known in entomological circles (unless, of course, readers of the *Bulletin* can correct me!).

## A MONARCH REPORTED ON WICKEN FEN

by Brian Gardiner (225)

Among the guests at a dinner with friends on 6th August was an American couple — she a GI bride from Ely. During the course of conversation they informed me that they had visited Wicken Fen that day. I asked if they had seen any Swallowtails. No, was the answer, but we saw a Monarch (*Danaus plexippus*). To them this is a common butterfly, and they were surprised when I informed them it was a rare migrant with us. Back in the States they lived near a Monarch Sanctuary area and knew the insects well, so I have no reason to doubt the sighting.

## BOOK REVIEW

*Rearing Wild Silkmoths* by Ronald N. Baxter, FRES, FZS, FLS.  
Chudleigh Publishing, Essex, 1992. ISBN 0 9519219 0 8. A5, pp72, softback, 28 colour photographs, plus monochrome photographs and figs. Price £7.95 plus 50p P&P (UK), £1.00 (Europe) and £2.20 Airmail (elsewhere).

I've been surprised for some time that there was little in the way of books dealing with Silkmoths, besides *A Silkmoth Rearer's Handbook* (Gardiner, AES Publications). As a complete beginner as far as silkmoths are concerned, I found the wealth of information in the AES handbook to be just a little too much for my first steps into the mysterious world of the Saturnids. Well, not really my first steps, as I had a go at rearing the larvae of *Eupackardia calleta* a few years ago — a venture that did not prove too successful. What I really wanted was a simple, straightforward manual to rearing silkmoths, that wasn't too much to swallow at the first bite, but told me all the things that I really wanted to know, such as the foodplants and whether or not a species was easy to rear, etc.

This new book should solve the problem, being a handy reference to anyone wanting to breed the many species of silkmoth often offered in Exchange Sheets such as the AES Wants & Exchange list, the ELG list and the EEG lists. It provides clear descriptions and rearing advice on a wide variety of species, from our own Emperor moth *Saturnia pavonia* with a wingspan of 6 to 8cm, to the Atlas moths with wingspans of over 20cm. Many of the species are illustrated in the colour plates, and a very handy foodplant check-list is to be found at the rear of the book. This will prove very useful to me, as if I had known that *E. calleta* larvae would feed on cherry and plum, I would not have been wary of trying them again. Last time, I used privet, but lately, everyone round here has been replacing their privet hedges with the horrid *Leylandii* clones, so privet is not easily available to me.

A section is also devoted to the rearing of silkmoths in general, from ova through to adult and there are some good tips on making your own cages. One piece of advice on turning an inexpensive plant propagator into a large cage has already proved very useful (and will no doubt increase sales for Messrs Sankey!). I am sure that both beginners and "old hats" will find this a very useful book. It is well written and produced to a reasonably high standard, the colour plates making an excellent centre-piece.

From a novice's point of view, it is hard to find a fault with this book, perhaps the only one being that the price is a little on the high side. However, it is an expensive venture to produce specialist books in

relatively small numbers (and to printers anything below 10,000 is a small number!), so at £7.95 + 50p P&P (which after all is only the price of a couple of decent silkmoth pupae), it's probably not bad at all. If I had had the book three years ago, I might have had *E. calleta* coming out of my ears by now. Now where can I find some more *calleta* larvae!

Paul Batty

## **ROESEL'S BUSH CRICKET (*METRIOPTERA ROESELII*) IN WEST LANCASHIRE**

by C.F. Steeden (7206) & N.J. Steeden

Whilst carrying out field work in the Fleetwood area (VC 60) in August 1991, we discovered a previously unrecorded colony of Roesel's bush-cricket (*Metrioptera roeselii*). The colony is well-established in an overgrown uncultivated area near the coast, where the vegetation includes thistles, brambles and coarse grasses. Many stridulating males were heard and seen. The female crickets remain silent and are more difficult to detect; hence, only a few — readily recognised by the prominent ovipositor — were found.

In Britain *roeselii* is quite rare, being largely confined to south-east England. The newly-found colony represents a significant extension to the recorded range. The other most northerly known colonies are on the Humber estuary on the east coast and the Dovey estuary on the coast of central Wales. In Ireland there is an isolated record from the south coast. A specimen from the new site was submitted to Chris Haes, who confirmed the determination of the species.

We have now recorded three species of bush-cricket from vice-county 60, the other two being the Bog bush-cricket (*Metrioptera brachyptera*) and the Oak bush-cricket (*Meconema thalassinum*). The distribution map in *Grasshoppers and Allied Insects of Great Britain and Ireland* (Marshall & Haes, 1988) shows a post-1960 record for a fourth species, the Dark bush-cricket (*Pholidoptera griseoaptera*).

## **PHOTOGRAPH OWNERS WANTED**

In recent years I have been responsible for the annual photographic competition organised jointly by the AES and Jealott's Hill research station at Bracknell in Berkshire. I have a number of photographs which need to be returned to their owners so if any members have not had their entries back I would be grateful if they could describe in detail their photographs and I will endeavour to let them have their pictures as soon as I am able. Terence F. Knight (7611), 46 Swinburne Avenue, Hitchin, Herts SG5 2RL. Tel: 0462-32332.

## EUROPEAN SOCIETY OF ENTOMOLOGISTS

Entomologists all over the new Europe realise the importance of establishing and improving contacts with each other, across nations and across disciplines. Better communication means more meaningful, more effective research. This is especially true in addressing the very many questions relevant to the whole of Europe and those best answered from a whole-continent perspective. The European Society of Entomologists aims to satisfy this need in an innovative way. It will be launched in 1993.

All with an interest in the study of insects are invited to participate, irrespective of their entomological disciplines and whether or not they are members of other entomological societies.

We hope that language will not be a barrier to communication across the new Europe. Naturally all may address the Society in their own language on any subject. To overcome communication problems, English, French, German and Russian are to be used for publishing Society correspondence and newsletters.

The Society is to be non-profit making and it is intended that the subscriptions of members will be payable in local currency wherever possible. It is hoped that partnership with appropriate international organisations and national societies will subsidise the subscriptions of members from countries in which local circumstances make it appropriate.

Further information concerning membership and the opportunity to participate in the formation of the Society at its launch next year are available from Dr Duncan Reavey, Department of Biology, University of York, York YO1 5DD.

## CLOUDED YELLOWS IN GLAMORGAN

*by Mike Price (5897)*

I would like to report that I saw either a Pale or a Berger's clouded yellow (*Colias hyale/alphacariensis*) flying over the main road in the small Rhondda village of Tylorstown at 11.00am on 28th June 1992. The morning was hot and sultry and the butterfly was heading in a south-westerly direction.

On 30th July, at Cross Inn, a small village a mile from Llantrisant, Mid-Glamorgan, I captured a male Clouded yellow (*Colias croceus*) and sighted another. I have never seen this butterfly in Wales in the 30 years I have been interested in butterflies.

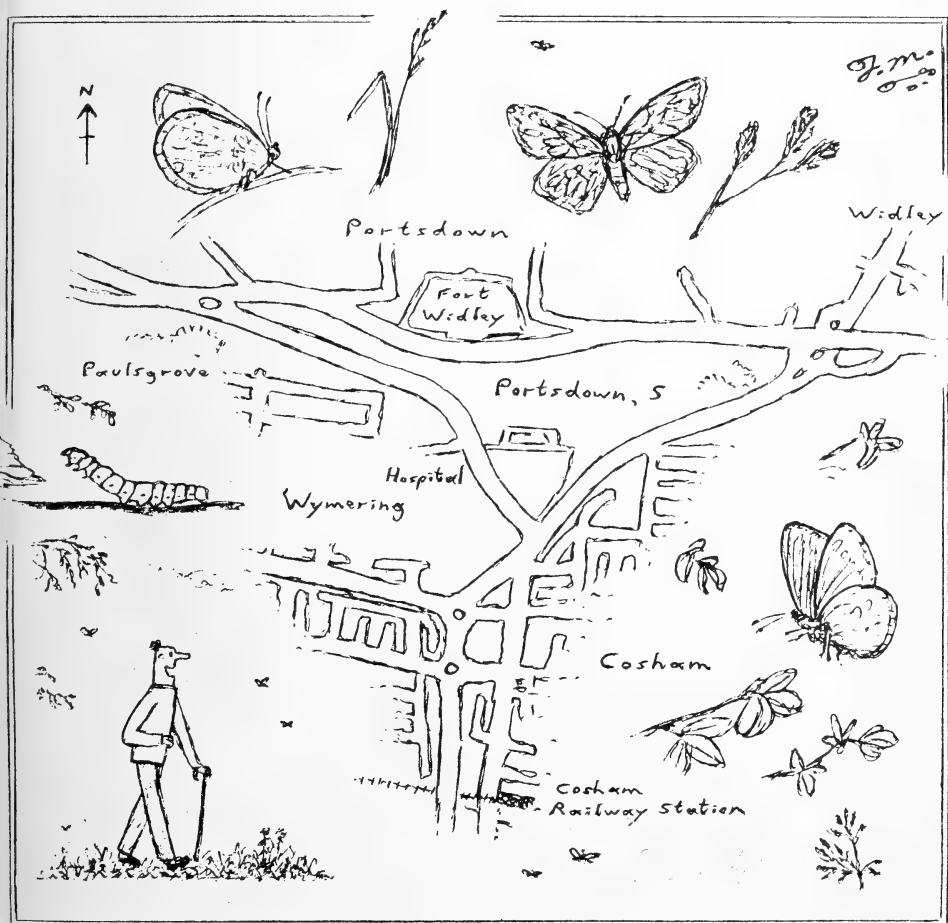
A friend did report to me that he had seen an unusual yellow butterfly flying in a cemetery at Maevdy Rhonda back in 1983 which he then identified from my collection as a Pale clouded yellow.



## PORTSDOWN HILL — A NEW SSSI

by Frank Marples (8226)

The British Butterfly Conservation Society has designated Portsdown Hill in Hampshire as a Site of Special Scientific Interest and a visit by members of their Hampshire Branch quickly spotted twelve species of butterfly. The site is an un-improved south-facing area of chalk down land and supports a large variety of animal (which of course includes butterflies) and plant life.



Portsdown Hill (S.E.Hampshire) — designated by the British Butterfly Conservation Society as a Site of Special Scientific Interest.

## BOOK REVIEW

*The Practical Entomologist* by Rick Imes. Quarto hardback, pp160, numerous colour and two-tone illustrations. Aurum Press Ltd, 1992. ISBN 1 85410 209 5. Price £14.95.

It is difficult to know what to make of this book, for it is a cross between a "Coffee table" offering mixed with serious and useful information on collecting and studying insects. The "Coffee table" element consists of numerous coloured illustrations, varying in size from small vignettes to full page. These show a variety of insects, all stages being represented, and are of excellent quality. The "practical" element consists of a number of diagrams illustrating the practical information given in the text, which is in three parts: that in the body of the text; keys which are given in a pale green box and a "what you can do" section which is encased on the page in a pale primrose box.

This being an American book, even though published in this country and printed in Singapore, some of the terminology and usages recommended may be strange to us. "Spreading boards" (which are of the Continental pattern) for setting boards; "trolling" for assembling, for instance. Only ethyl acetate seems to be recommended as a killing agent, no mention of freezing, cyanide or ammonia and there are better ways of preserving colour in dragonflies.

Just about every aspect of entomology is covered and a mention at least made of most of the orders. Their anatomy and physiology is detailed. Social organisation and feeding strategies are explained and illustrated. Details are given of the tools that will be required (nets, boxes, forceps etc) and we are shown how to pin, set and conserve a collection. Emphasis is laid on observation and experimentation.

The pale primrose sections "what you can do" give suggestions of experiments that can be done to illustrate and expand on points brought up in the text. To give some instances: How to train bees to visit certain patterns; How to correlate the chirruping of a cricket with varying temperature; How to choose the correct photographic equipment; How to photograph a butterfly; How to observe dragonfly nymphs "jetting".

The final section on "Contacts" lists mainly USA suppliers and organisations. Although the AES is given, it is particularly unfortunate that Mr Imes has not consulted any of our publications for some years, since he has not got our name correct (Entomological, not Entomologists'), nor our address, giving that of our Publications agent of many years ago and then, in confusion, listing "Amateur Entomologist" as if it were a separate Society and with an address of a previous Secretary! Such obvious inaccuracy always makes a reviewer suspicious of what other howlers there might be that he has missed.

Nevertheless this is a well-produced book and in spite of its American orientation contains much useful information not available elsewhere under the same cover and is certainly suitable to give any youngster an introduction to, and insight into, entomology.

### **BREEDING THE WOODLAND BROWN, *LOPINGA ACHINE***

*by P. W. Cribb (2270)*

In the third week of July 1991, David Marshall and I collected a female Woodland brown in the Jura, France near the village of Etival. This produced about 30 eggs, green spheres laid in the same way as those of the Marbled white, *Melanargia galathea*, and the Ringlet, *Aphantopus hyperantus*, by dropping them into the grass. We shared the eggs and on my return home I placed my sixteen into a large flower-pot into which I had planted *Lolium perenne* and *Agrostis* sp. grasses. The eggs hatched about fourteen days after they had been laid, producing bright green larvae marked with faint yellow lines running the length of the body. They moulted once before cold weather came, when they went down to the bases of the grasses, curled up and did not appear to feed until the spring. Twelve survived the winter and they quickly fed up as the weather improved, moulting twice more, the full-grown larvae still having a ground colour of light green with the yellow lines, but the dorsal area, lying between two of the yellow lines appeared a darker green. All had pupated by the third week in May, the pupae being suspended by the cremaster from grass blades. Males emerged first, about 21 days after pupation, and the females followed, all having emerged by the 10th June. This was more than a month ahead of the date when the original female had been collected and I suspect that the speed of development was due to the micro-climate engendered by having the pot covered with black nylon netting. I did not observe any matings but a week later I noticed some eggs scattered amongst the grasses in the breeding container. I went off to France again with David on the 1st July for two weeks and upon my return I was pleased to find twenty small larvae present.

### **ENTOMOLOGICAL CLUB GRANTS**

The Entomological Club has a small income from investments and through the generosity of members attending its annual Verral Supper. Grants are made to assist entomologists studying British insects. The Club would need to be satisfied that the line of work would lead to publication and that it is not fundable elsewhere. Grants would not exceed £200. Applications should be addressed to Claude Rivers, The Entomological Club, 17 Cumnor Rise Road, Oxford OX2 9HD.

## THE BUTTERFLIES OF EAST LEEDS

by Richard Bailey (6370)

17 Kingsway, Garnforth, Leeds.

The following is a list of butterflies occurring in my home town of Garforth, seven miles south-east of Leeds city centre. I am afraid we cannot boast any members of the "Protected" (fully or otherwise) clan, but then this is not prime butterfly country. Having lived in Garforth all my life (21 years) and been a keen Lepidopterist for most of that time, I believe my list to be accurate.

*Thymelicus sylvestris* (Small skipper)

*Ochlodes venata* (Large skipper)

*Pieris brassicae* (Large white)

*Pieris rapae* (Small white)

*Pieris napi* (Green-veined white)

*Anthocharis cardamines* (Orange-tip)

*Lycaena phlaeas* (Small copper)

*Polyommatus icarus* (Common blue)

*Vanessa atalanta* (Red admiral)

*Cynthia cardui* (Painted lady)

*Aglais urticae* (Small tortoiseshell)

*Inachis io* (Peacock)

*Pararge aegeria* (Speckled wood)

*Lasiommata megera* (Wall brown)

*Pyronia tithonus* (Gatekeeper)

*Maniola jurtina* (Meadow brown)

*Coenonympha pamphilus* (Small heath)

*Aphantopus hyperantus* (Ringlet)

*Nymphalis antiopa* (Camberwell beauty)

All but five of these species have occurred every year that I have bothered to take note. The Small heath is one of the five, having been completely absent until three adults were spotted in 1990. Colonies of Speckled woods, Gatekeepers and Ringlets have only come to my attention in the last three summers. Speckled woods and Ringlets were both seen in reasonable numbers in 1989, less so in 1990 and not at all so far this year. Gatekeepers, on the other hand, having been completely absent before, have appeared in large numbers this summer. All three species are interesting because — according to my reference books — all three are on the very edge of their range. Hopefully this means that their range is increasing. I am not too concerned about my lack of sightings this year — being 21 allows little time for butterfly watching.

Oh, I almost forgot to mention the last of the five "irregular" species. On a hot August day in 1976 I came across a Camberwell beauty sunning itself and feeding on a tall yellow flower. My friend shouted for me to catch it and I would have done so but for the fact that, at 6½ years old, I would have had to fold it several times to fit it into my tiny hands. My mother still doesn't believe me!

Stop press: Fortunately, having taken so long sending off this article, I can add another species to the list. On 14th September I spotted a large and fresh-looking Comma butterfly *Polygonia c-album*, not (*f. hutchinsoni*) feeding on a buddleia bush at the end of my street. Ain't life grand!

## SOME INTERESTING INSECTS FROM KILLARNEY NATIONAL PARK, CO. KERRY

by Tim A. Lavery (8677)

*Country Watch, Farnes, Castlemaine, Co. Kerry, Ireland.*

The mature oakwoods, alder carrs and yew groves of Killarney National Park, located in the centre of Co. Kerry serve as a formidable host to a great diversity of plants, animals, and of course, insects. In the past century and a half, over 50% of Ireland's native butterflies and moths have been recorded from this majestic Park, the numbers of species in other Orders is probably quite similar, and many rare and little known species have found refuge within its boundaries.

Living some 15 miles from the Park has allowed me ample opportunity to investigate the insect fauna occurring there, and having a particular interest in the Dance flies (Empididae, Hybotidae, Microphoridae) I set about finding the various species that inhabit the 25,000 acres of the Park. With every visit additional species are found, a number new to Ireland. I have also had some exceptional field trips with other entomologists, and frequently even the weather had to agree that this was just the most amiable of places and lay provision for its sunny disposition! On the weekend of 10th/11th August 1991, the Lavery clan, consisting of Diane (our ever effervescent mother), John (brother), Mary (his wife), Rowena, Sharon (their daughters) and of course myself ventured forth into the centre of the Park. No sooner than arriving at our destination (the Mines Paddocks, Muckross) we encountered Purple hairstreaks (*Quercusia quercus*) (notable in Ireland), a Brimstone (*Gonepteryx rhamni*), Buff footman (*Eilema deplana*) and the rare Tachinid fly *Alophora hemiptera*, male (Fig. 1), a most remarkable and exotic element of the Irish fauna — there it was sitting on some hemp agrimony at the edge of a large unimproved meadow. Having come across a large stand of blackthorn we watched and carefully poked (!?) the branches in the hopes of turning-up a post-19th century record of the Brown hairstreak (*Thecla betulae*). However, luck, or at least the butterfly, was not on our side, and still remains to be confirmed from this part of the country.

Having doffed the nose-bags we wandered more freely and scattered along this beautiful peninsula which has at its head the stately Muckross House, open to the public, and presently thronged with enthusiastic visitors. Here along the shores of the lake it was comforting to be able to relax in the company of swift, gliding silver-washed fritillaries (*Argynnis paphia*), Meadow browns (*Maniola jurtina iernes*), and witness the aerial acrobatics of various dragonflies, leading one's eyes across the canopied middle-distance, over the silk smooth lake surface, smitten by the reflections and hum of the surrounding Park lands.

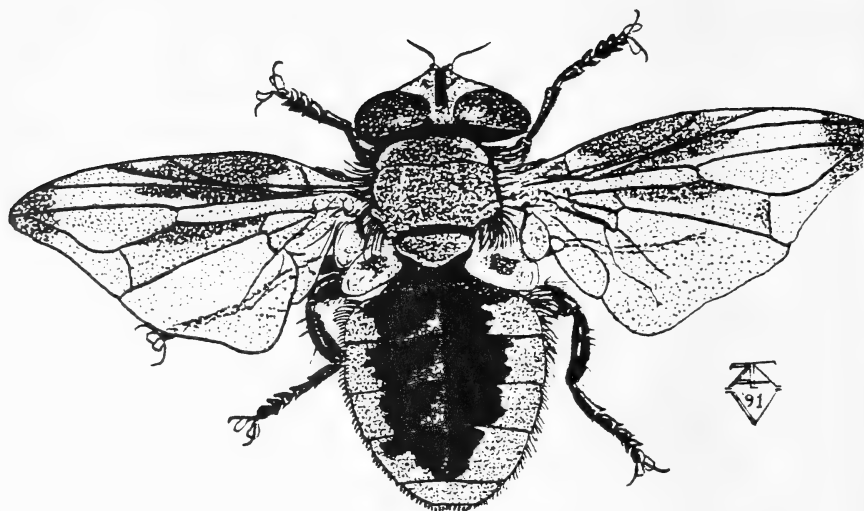


Fig. 1. *Alohophora hemiptera* F. by T.A. Lavery.

Each and every trip to these beauty-laden lakes fills our thoughts and memories and we travel home with the knowledge that yet more wonders await our return.

## VISUAL AND OLFACTORY STIMULI AMONG FRESHLY EMERGED PIERIDAE

by A. Crawforth (9510)

On three separate occasions during May this year, I have observed a small cluster of six or seven mixed Pieridae spiralling in flight in pursuit of a freshly emerged female Orange-tip (*Anthocharis cardamines*).

What is interesting about these observations is that on only one of these occasions was there a male Orange-tip in pursuit. Presumably, as all other butterflies present were males, of either Large (*Pieris brassicae*) or Green-veined (*P. napi*) whites, this courting pursuit must have been mainly through visual stimulus. However, with the male Orange-tip present on one occasion the stimulus could have been olfactory, caused through the female Orange-tips pheromone. The question is, are the males of *brassicae* and *napi* also susceptible to this pheromone?

Whilst out for an evening walk on 22nd June, thinking about these whites, I saw an early male Painted lady (*Cynthia cardui*) sunning itself on a fence at about 7.00 pm.

## BUTTERFLY FESTIVAL AT LETCHWORTH

by *The Editor*

I attended this event which was given advance notice in the April *Bulletin* and greatly enjoyed it. Not only were there live butterflies to be seen, but a real string quartet played delightful music to accompany the displays. A local junior school had put on a display of its "butterfly activities" and it was encouraging to see youngsters of this age already being concerned about conservation and doing something to help. Both on display and for sale were plants, books, stamps and pictures by such well-known artists as Richard Lewington, who was present in person and from whom could be bought some of the original illustrations done for *Moths and Butterflies of Great Britain & Ireland* as well as framed originals by other artists. There was also a slide presentation and a guided walk, which I unfortunately missed, and which was not as well attended as it deserved to be, to view some of the local butterflies. Standalone Farm, where the event was held, is a local Field Centre, set in the countryside and there was plenty to see as well as the butterflies, including some very tame goats.

## BOOK REVIEW

*Insects, plants and microclimate* by D.M. Unwin and S.A. Corbet. A5, pp68, 4-colour plates, text figs. *Naturalists' Handbook No. 15*. Richmond Publishing, 1991. Price £7.95 (paperback), £13.00 (boards).

The series of *Naturalists' Handbooks* has established a reputation as excellent introductions to particular topics — which have included *Insects on nettles*, *Hoverflies*, and *Weevils* among many others. They have provided an authoritative yet lucid guide to the topic.

This volume is a marked departure from previous ones in that the identification keys, a common feature of other volumes, are vanishingly few, and not very useful except, perhaps, for the non-entomologist who might need to distinguish between a butterfly and an earwig.

Not to worry! This is a book both informative and practical, on a topic that we all know is important, but which few of us know anything about. Chapters cover weather and microclimate, conditions near the ground, plants and insects and microclimate, measurement, humidity calculations, presenting microclimate data and details of hardware requirement — heavily biased towards DIY versions.

Apart from simply being an interesting book to read, the practical information given will be of considerable interest to schools, colleges and universities in designing field and practical work on this topic, and constructing simple yet reliable apparatus to measure things such as windspeed, light intensity, temperature and humidity in an ecological

environment. There is also plenty of scope for the interested amateur to experiment, and, importantly, to understand some of the physical conditions that influence and determine insect behaviour.

Paul Sokoloff

## BOOK REVIEW

*Cornwall's Butterfly & Moth Heritage* by Adrian Spalding. A5 paperback. Pp48 including colour and other illustrations. Twelveheads Press, Truro, Cornwall TR4 8SN. 1992. Price £2.50.

This book contains a surprising amount of information, and includes sections dealing with Geology and Habitats, climate changes since the ice ages, the present Cornish climate, changes in distribution of species in Cornwall, species of various habitats ranging through coastal, woodlands, scrubland, moorland and grassland, with short lists of a few of the larger moths and butterflies which have been recorded both in various types of habitat, and in some named localities. Mention is made of all the known Cornish butterfly species, both past and present, together with many of the macro-moths, including some of the rarer species, which have been recorded in Cornwall. Only a very small number of the micro-moth species are mentioned.

There are over 50 photographs, of which 24 are in colour, showing living specimens in natural positions — the colour photography in particular being of excellent quality.

A very interesting little book — and really good value for money. JLG.

## ENTOMOLOGICAL THEFT

In Cambridge recently a pet shop had two breeding female Mexican red knee spiders (*Brachypelma smithii*), valued at £100 each, stolen together with some valuable heating equipment. We have heard of other recent cases of livestock being stolen, although this is nothing new since the Department of Zoology here lost a whole cage of stick-insects some years ago. It does seem, however, that entomological crime is on the increase, not just of livestock but also of collections, for a Dorset Museum has had some specimens stolen and we understand a person has been charged.

## INSPECT YOUR PIT-FALL TRAP FREQUENTLY!

Member H.A.C.T. Clark (3910) has written to us pointing out that a week is far too long a period to leave a pit-fall trap (*Bulletin* 51: 99) un-inspected, as many mammals entrapped could die within twelve hours; indeed a shrew, which has a high metabolic rate, would probably die within three hours.





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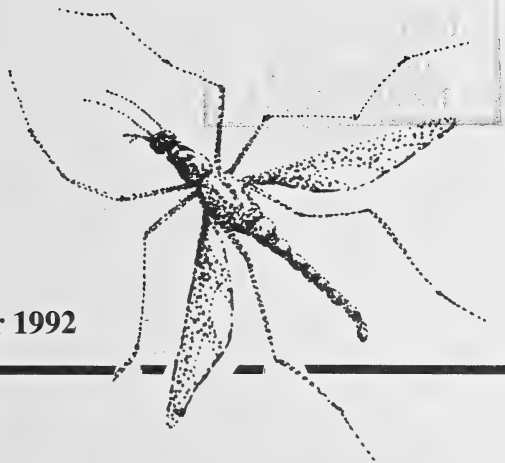
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**Volume 51, No. 385, December 1992**

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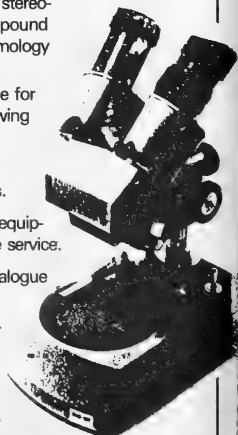
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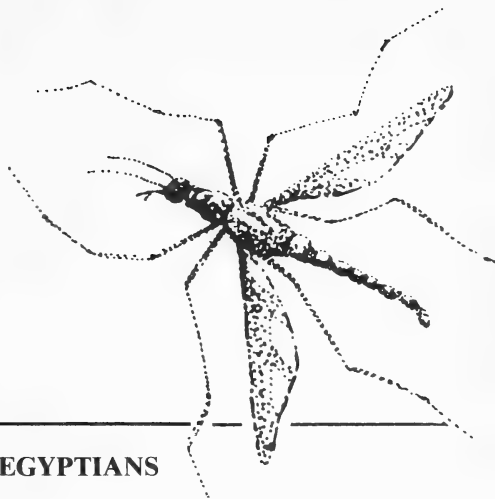


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# AES BULLETIN

No. 385



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## THE SCARAB AND THE ANCIENT EGYPTIANS

by K.C. Lewis (3680)

108 Park View Road, Welling, Kent.

To the ancient Egyptians the scarab beetle was synonymous with Khepri, the sun-god and creator of the universe. There was also a close relationship between Khepri and Nut, the goddess of the sky. Paintings of her show legs, body and arms stretched upwards in a great arc to form the arch of the heavens. A tomb painting on the ceiling of the sarcophagus chamber of Ramesses VI shows the sun's journey across the heavens. The arc of Nuts body in this painting represents both night and day. If the painting could be animated we would see the sun-god travelling in his boat from the east along the elongated body of Nut. With the onset of evening the sun-god approaches Nut's mouth where he is swallowed. Through the hours of darkness the sun-disc travels safely through the sky-goddess's body. With the first glow of dawn the sun-god is reborn and can be seen emerging from the vulva of Nut to ride the heavens of a new day. The link between the sun-god Khepri rolling the disc of the sun across the heavens from which all life originates and the scarab rolling his ball of dung across the ground was observed by the priests of ancient Egypt. If it was possible for the scarab beetle to bury a ball from which new beetles emerged later, then Khepera, the creator of the universe, must be a beetle — the roller of the solar ball. With this observation the religion of the solar cults emerged in the Nile Valley.

The use of the scarab beetle is not synonymous as was first supposed to the god Ra. The man-god Ra is thought to have originated in the east and did not appear prominently in Egypt until the IVth or Vth dynasties. In ancient Egyptian the name Kheprera suggests that the root of this name is Kheper, meaning to come or spring into being or birth, and the god of which this beetle was an incarnation was called Khepera. The god Khepri is often depicted as a man with the exception of the head which is in the form of a scarab beetle. Two illustrations of Khepri in this guise can be

found in the book *Beetles* by Bernard Klausnitzer (Exeter Books). In this book the name Khepri is spelt as Cheper. Khepri is also found as a hawk-winged scarab, its front legs minus tarsus stretched out in front, its back legs splayed out on each side of a hawk-like tail, the tarsi replaced by hawks' talons which are clutching something which look like finger rings but which are, in fact, symbols of "eternity". This interpretation of Khepri was found in the tomb of Tutankhamun, Dynasty XVIII, and is now housed in the Museum at Cairo.

The scarab was often used as a seal by high officials who had their names cut into the beetle. These seals were sometimes carried on a string attached to the ring but were not worn on the hand like an ordinary ring. Many beautiful scarabs of the beetle *Scarabaeus sacer* were fashioned with great detail and accuracy from carnelian, lapislazuli and mother-of-emerald (a variety of prase, a leek-green quartz — thought at one time to be the mother rock of emerald). But the Egyptians' belief of Khepri, the great creator, was not embraced by all cultures in the middle-east. The Greek scholar Physiologus though, writing later, wrote a collection of anecdotes on the subject of natural history. These anecdotes were later used for a Christian purpose or moralisation of earlier beliefs. Physiologus explained how the scarab encapsulates its egg inside a ball of dung (the ancient Egyptians were totally ignorant of the egg and larva stages of the beetle). He went on to write that even the process of rolling the ball backwards, and not forwards, was evil and was therefore wicked and a sin for the young that are hatched out of this ball, and having come to life feed upon the dung in which they are hatched and so must be heretics polluted by filth and evil nastiness which they consume.

The scarab beetle also received a bad press from many Syrian writers who also showed a total lack of understanding about the life and habits of the beetle. One writer stated in a book on natural history, and I quote: "The scarab receives conception through its mouth" which could have been an observation of the female beetle feeding her young. The writer goes on to tell how the beetle gives birth to its young through her ears and its magpie-like behaviour. The beetle has a habit of stealing many small things so that, if it finds gold or silver, it will take it and hide it in its burrow. The Egyptians used two beetles as models in their art and these were the beetles *Scarabaeus sacer* and *Goliathus atlas*. The former is the one mostly depicted in the museums of the world and can be seen in thousands, the second beetle being the heart scarab (which I will mention later).

Although many millions of models of the beetle *S. sacer* exist in Egypt, very few large models of scarabs, such as those placed in temples, are known. The largest model known is made of green granite and is unmarked. It is five feet long and weighs approximately forty-five

hundredweight. Where this model originated from is unknown, but it was obtained by Lord Elgin (who also brought back the Elgin Marbles) from Constantinople and can now be seen at the British Museum. One other large scarab stands on a pedestal at Karnak and dates from the reign of Amenhotep III. Sir Harry Johnson in his books *Travels in Africa*, Volume II, writes that the beetle *Ceratorrhina goliath* was used as a medicine and for native sorcery. This beetle was also used by Sudani women who ate the beetles in the belief that they made them more productive. The Egyptians also made use of the beetle, grinding the keratin of the beetle which they mixed with various oils as a remedy to ease labour and childbirth (*Ebers Papyrus*). During the early dynastic period, Dynasty I and II, 3,000 - 2,686 B.C., the Egyptians during the process of mummification removed the heart (along with other organs) from the body of the deceased. A priest would then invoke a prayer to prevent any evil befalling it. The other organs were then placed in one of four "canopic" jars and a scarab of green or black stone was placed in the cavity of the removed heart. The removal of the heart was not always carried out in the process of mummification. During Dynasty XII, 2000 B.C., the heart was removed, wrapped in linen and replaced in the body cavity or with other viscera in linen parcels placed between the legs, accompanied by dummy canopic jars. The heart scarab was inscribed with a prayer "Weigh not heavily against me before the keeper of the balance. Tell no lie against me in the presence of the great god. Behold thy reputation is at stake". This and other prayers were recited by the deceased in the presence of the two goddesses Ma'ati and Osiris while the heart was weighed on a balance against the weight of a feather with the hope that the two sides would balance; if they did not, this was an indication that the deceased had not led a pious life and consequences were dire. The ritual and spells concerning the deceased person, mummification, even the exact dimensions of the scarab beetle model, can be found in the Theban *Book of the Dead*. During the reigns of Thothmes III and Amenhotep III scarab models were made with their bases inscribed with hieroglyphic texts which recorded important events as when Amenhotep III recorded his marriages. The erection of obelisks at Karnak were inscribed on scarabs by Thothmes III; Amenhotep IV was responsible for the very large scarabs which were made in honour of Aten. However, a vast number of scarab models bear no inscriptions on their bases at all, the space being filled entirely with designs of flowers, animals, trees, fish, reptiles, etc.

### *The Scarab and the Mummy*

Many mummies were found to contain many scarab models and other amulets. These were found by X-ray as it is not the policy to unwrap a

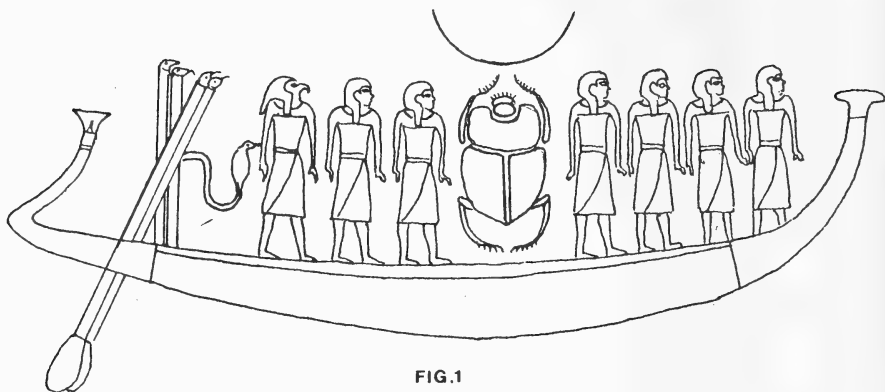


FIG.1

Fig. 1. A funerary papyrus of 1100 showing Khepri in his solar boat holding up his disc.

mummy in the United Kingdom. Two cases of mummies being unwrapped — the Manchester mummy and the one at Bristol — were carried out because of the poor state of preservation. The Bristol mummy, a priest called Horemkenesi, was unwrapped because salts used in the embalming process were destroying the bandages through chemical action. The mummy Djedhor, from Abydos, was found to contain seventy-five amulets and eleven scarab models made of glazed and stone material. Items which can be seen at the British Museum, and which I have illustrated, are:

Fig. 1: part of a papyrus

88

“BUDGE 5-12 10472.7”

222

; this is a funerary papyrus of the high priestess Anhai XX, dynasty about 1100 B.C., which shows Khepri in his solar boat holding up the sun disc. In this papyrus the scarab is painted blue and the sun disc gold. Fig. 2: Strangford papyrus 9970, 1-3, 1; this is a part of papyrus which shows the ram-headed god and Khepri and sun disc in the bows of the solar boat as it is dragged through the eleventh and twelfth hours of darkness by deities who stand on world snake's back. The scarab in this papyrus is painted black. The significance of depicting a royal personage as black in a tomb did not mean that they were of Nubian stock: it signified death and rebirth. So I am making the assumption (not confirmed by the British Museum) that the black-painted scarab signified the death and rebirth of the sun each morning. Fig. 3 illustrates a winged scarab. Figs. 4 and 5 are listed under Universal Deities. Fig. 4 is a hawk-headed *Scarabaeus*, titled Emblem of Ra, B.M. No. 2044. It is made of lapis lazuli and is about one



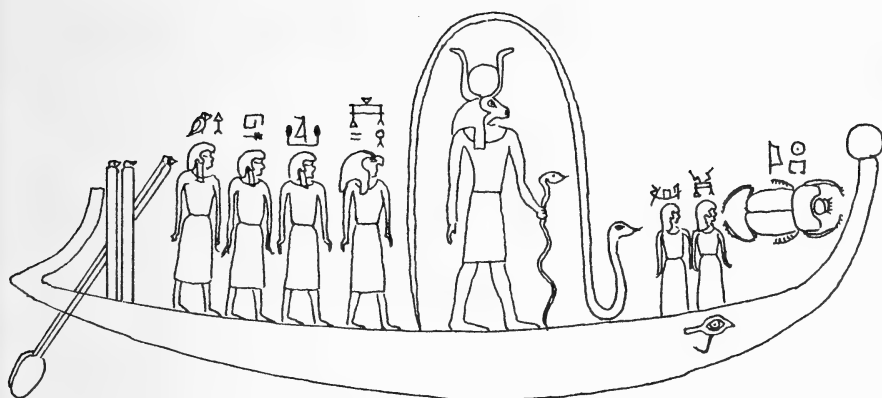


FIG. 2

Fig. 2. Papyrus showing the ram-headed god and Khepri with the sun disc in the bows of the boat.

inch long. Fig. 5 is titled *Scarabaeus* with Wings Holding Solar Disc, Emblem of Ra, B.M. No. 2047, and is about one-and-a-half inches long. Case 96, which exhibits funerary equipment, contains fourteen heart scarabs (at the time of writing as this room is in the process of re-arrangement). Listed are a few of the most beautiful: a gold-mounted scarab made of green jasper, which looks like a cameo of the type a lady would wear today and is said to have been made for King Sobkemsaf, 1650 B.C.; a Serpentine scarab; a green Serpentine scarab; a lapis lazuli

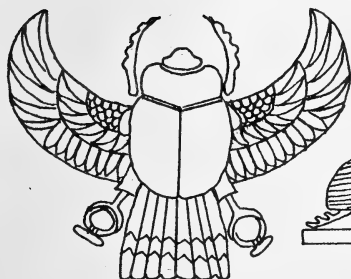


FIG. 3

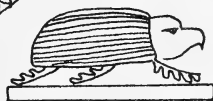


FIG. 4

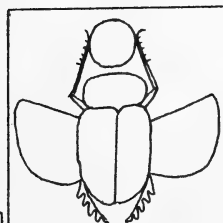


FIG. 5

Fig. 3. A winged scarab. Fig. 4. A hawk-headed scarab. Fig. 5. A scarab with wings holding up the solar disc.

scarab; a green Felspar or Feldspar — “a rock-forming silicate scarab”; and a scarab of dark steatite or soapstone which is greasy to the touch and easy to carve.

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### PLAIN TIGERS IN SPAIN

by David Tucker (9552)

I should like to report that I made several sightings of the Plain tiger (*Danaus chrysippus*) between 8th and 19th October 1990 in or near the resort of Roquetas de Mar, Almeria, south-east Spain. All the sightings were made within 300 metres of the coast, with double figures on the 8th and decreasing numbers subsequently, there being only singletons after the 12th. The illustration from a colour transparency, shows a specimen in a sunning position.



9b

**FURTHER NOTES ON THE BUTTERFLIES OF ANSTON STONES***by Paul W. Batty (8926)**4. Byron Road, Dinnington, Sheffield, South Yorkshire S31 7LP.*

This article is an update of 1991 records to my earlier article which appeared in *Bulletin* 50: 51-57. The year 1991 was an interesting one for butterflies here in South Yorkshire. Most species that are found in good numbers each year have been as prolific as usual and several less common species have been recovering in numbers, some species surprisingly abundant.

Both the Large and Small skippers appear to have been as abundant as usual, the Small skipper perhaps down in numbers a little but not enough to cause concern. For the third year running, I have not seen the Dingy skipper in Anson Stones; however, this species still keeps turning up in odd ones and twos around Lindrick and on the Golf course and reasonable colonies exist in at least two nearby disused limestone quarries.

The Brimstone has been around in the usual numbers. One may not always spot the adults but an abundance of eggs and larvae on buckthorn shows that they are still around and active. I enjoyed watching a female lay on a small alder buckthorn this spring and upon searching the buckthorn and its neighbours, I found a large number of eggs. Fellow AES member Robert Bellis has planted several dozen alder and purging buckthorns on his land at Anston and all proved most attractive to laying Brimstones. Large, Small and Green-veined whites were present this season in their usual numbers, but the Orange-tip was perhaps a little scarcer in Anston Stones although there were large numbers in the surrounding areas. There is never a great deal of garlic mustard *Alliaria petiolata* in Anston Stones (this is the main foodplant here on the limestone); in damper sites within a mile or so Lady's smock, *Cardamine pratensis*, serves equally as a foodplant.

The White-letter hairstreak was quite common in Anston Stones until a few years ago, the loss of most of the large elms causing a drastic decline in numbers. I have had no sightings for the past few years and was delighted this year to meet a fellow entomologist who had seen two adults earlier that afternoon. I raced down to the spot and hung around for hours but sadly did not manage a sighting myself. Perhaps next year . . .!

The small copper has always put in an appearance, but only ever in small numbers. This year I was pleased to see a noticeable increase. There is certainly no shortage of Common sorrel *Rumex acetosa*.

SPECIES	1986	1987	1988	1989	1990	1991
Small skipper	130	70	70	42	160	100 +
Large skipper	175	210	255 +	270 +	270 +	250 +
Dingy skipper	1m	1	1	—	—	—
Brimstone	2	3	3	14	15 +	12 +
Large white	40 +	45 +	50 +	60 +	80 +	50 +
Small white	25 +	40 +	40 +	75 +	75 +	100 +
Green-veined white	50 +	30 +	60 +	50 +	75 +	50 +
Orange-tip	30	30 +	45 +	40 +	65 +	30
White-letter hairstreak	3ova	9ova	—	—	—	2
Small copper	1	—	3	4	4	15
Common blue	14	16	11	7	13	10
Holly blue	—	—	—	—	3	50 +
Red admiral	1	2	1	5	14	3
Painted lady	—	—	7	—	1	5
Small tortoiseshell	9	31	70 +	105 +	230 +	150 +
Peacock	5	18	40	82 +	185 +	50 +
Comma	1	—	—	3	23	50 +
Wall brown	22	27	35	40 +	230 +	200 +
Marbled white	21	100	60 +	100	100	70
Gatekeeper	17	20	25	40	110	100 +
Meadow brown	110 +	110 +	170 +	100 +	225 +	200 +
Small heath	122 +	125 +	255 +	260 +	315 +	250 +
Ringlet	2	5	12	20	20 +	25
Speckled wood	—	—	—	—	—	1

Table 1. Relative abundance of butterflies at Anston Stones over a six-year period.

The Common blue has not been very common at all for some years now, but numbers remain about the same. The habitat just does not seem to be right in Anston Stones at the moment. Elsewhere in Anston and at the Lindrick quarries and the Golf course, there are always good numbers of Common blue (although at these sites the grass is shorter and thinner and I would say that the sites are more sheltered). The Holly blue, however, has undergone a population explosion over the last couple of years. This seems to have been constant all over the country. In 1990 I saw only three adults, but judging by the numbers this year, it is safe to assume that there were many more. They were everywhere this year, even deep in the wood where normally one would not expect to see

butterflies of any kind. It was a pleasure to see them in twos and threes swirling and tumbling around every ivy-clad tree. In the autumn the ripe blackberries were very attractive to them and while berry-ing I was able to observe them naturally at close quarters, a first for me in the home area. I found a couple of ova on dogwood and the odd one on buckthorn, although I must admit that I didn't have the patience for very much searching.

Both Red admiral and Painted lady were scarce this year, not being seen until September and then only in small numbers. I netted a couple of female Painted ladies onto a mix of nettle and thistle but could not get them to lay. I just cannot seem to cut my teeth on this species! Small tortoiseshell was abundant again this year, although the Peacock seemed to be a little down in numbers. The Commas made up for this with good numbers throughout the year. A record number (eight) appeared on my ubiquitous garden buddleias this year and I heard of many more elsewhere in the area. This would have been unbelievable only a few years ago but of course the Comma, like the Holly blue, is well known for its expansion (and contraction) in range, so no doubt by the end of the century I will be talking about the "good old days" of 1990 - 91.

The Wall brown has done very well for the second year running and the colony of Marbled white that was introduced in the early '80s is still holding strong despite a high proportion of the adults being taken each year by breeders and collectors. The Gatekeeper has been very successful again this year, not just in Anston Stones but throughout the area and little needs to be said about the Meadow brown and Small heath. Both are very common and in good numbers. Strangely enough, although the Ringlet was around in relatively good numbers, I did not see any of the form *caeca* this season. A single Speckled wood turned up at the "Lindrick end" of Anston Stones (my first record here) and I heard several reports of this species at Lindrick, on the Golf course. All the species present have been recorded regularly over a period of six years and the results are presented in Table 1 opposite.

## **SMALL TORTOISESHELL GOES UNDER, NOT OVER, THE ENGLISH CHANNEL**

*by K. Lawson*

On 7th September this year, at 11am, an incident occurred which, to my knowledge, is the first of its kind. This was the finding of a Small tortoiseshell butterfly (*Aglais urticae*) flying in the undersea crossover of the Channel Tunnel. This location is about five miles from the English coast and 120 feet below the seabed. My thoughts are that it hitched a ride on one of our trains. It was caught, brought to the surface and is now in my possession.

## BOOK REVIEW

*The Angelic Fly* by David Spooner. A5, paperback, pp88, illustrated.

Published by the author, 96 Halbeath Road, Dumfermline, Fife KY12 7LR. Price £2.50.

This appallingly badly printed booklet consists partly of reprints of various articles, both poetic and otherwise, that appeared in the now demised *Butterfly News* and some esoteric items vaguely related to an entomological subject which have clearly taken the author's fancy. It is encased in a coloured cover depicting some tropical butterflies in cigarette card format.

The text is set in Xerox quality print which is variable both in line spacing, line length and in length on the page, the page numbers (centred on "bottom" of page) going up and down like a yo-yo, occasionally merging into the illustration on that page!

Having seen some well-printed booklets, some with coloured illustrations at the same price I can see no excuse for such a poor production.

Brian Gardiner

## LADYBIRDS AGAIN

by E.J. Smith (6580)

44 Springhill, Sheffield S10 1ET.

Following the recent articles on ladybirds in the *Bulletin* perhaps the data below may be of interest.

The ladybird population of a small derelict industrial site in Sheffield (VC63, SK3387) was surveyed over twelve lunch breaks during a period of good weather between July and September 1991.

The site is twenty metres square and completely isolated from its surroundings by five metre walls, and was for sixty years a steel smelting plant. This operation being discontinued the roof was removed in 1985 and since then there has been a steady accumulation of industrial litter of all kinds, and a ground cover of some forty square metres of vegetation growing on rubble in one corner, the rest of the area being concrete.

Table 1 shows the plant species present, the approximate percentage of the area each plant occupies, and the numbers of ladybirds recorded from each plant species. The bottom line shows the number of larvae (unfortunately not identified to species level) recorded from the vegetation on 19th June.

Table 2 shows the number of ladybirds and their varieties seen, when, and on what plant species they were recorded.

Plant Species	<i>Salix caprea</i>	<i>Cirsium arvense</i>	<i>Artemisia vulgaris</i>	<i>Betula pubescens</i>	<i>Epilobium hirsutum</i>	<i>Epilobium angustifolium</i>	<i>Atriplex hastata</i>	<i>Cirsium vulgare</i>	<i>Buddleja davidii</i>	<i>Rumex obtusifolius</i>	<i>Solanum dulcamara</i>	
Approx. % Ground Cover	25%	20%	15%	10%	10%	5%	5%	^ 5%	^ 5%	^ 5%	^ 5%	
<i>Coccinella</i> 7 Spot	6	1	3	2		5			1			18
<i>Adalia</i> 2 Spot (f. typica)	229	38	69	48		19	1	2	3	1	1	411
<i>Adalia</i> 2 Spot (f. 4 maculata)	51	1	4	6		3						65
<i>Adalia</i> 2 Spot (f. 6 pustulata)	9	3	2	3		1	1		2			21
<i>Adalia</i> 2 Spot (f. annulata)	1	2	1									4
<i>Adalia</i> 10 Spot (f. 10 punctata)	1	1	1			1						4
<i>Adalia</i> 10 Spot (f. 8 punctata)	1											1
<i>Calvia</i> 14 Spot	1											1
<i>Propylea</i> 14 Spot	1	1	1									3
Total Numbers	300	47	81	59		29	2	2	6	1	1	528
Larvae counted 19/7/91	75	37	5	5	1		1			1	1	126

	<u>5</u> 7	<u>17</u> 7	<u>19</u> 7	<u>22</u> 7	<u>23</u> 7	<u>24</u> 7	<u>25</u> 7	<u>26</u> 7	<u>12</u> 8	<u>20</u> 8	<u>27</u> 8	<u>13</u> 9	Totals
<i>Coccinella</i> 7 Spot	1	2	1	1	1		1		7	2	2		18
<i>Adalia</i> 2 Spot (f. <i>typica</i> )	1	14	26	28	51	59	50	60	85	31	5	1	411
<i>Adalia</i> 2 Spot (f. <i>4 maculata</i> )	1	2	7	10		9	8	10	14	4			65
<i>Adalia</i> 2 Spot (f. <i>6 pustulata</i> )				1	4	5	2	4	4	1			21
<i>Adalia</i> 2 Spot (f. <i>annulata</i> )						2		2					4
<i>Adalia</i> 10 Spot (f. <i>10 punctata</i> )			2	2									4
<i>Adalia</i> 10 Spot (f. <i>8 punctata</i> )							1						1
<i>Calvia</i> 14 Spot								1					1
<i>Propylea</i> 14 Spot							1	1		1			3
	3	18	36	42	56	75	63	78	110	39	7	1	528

The variety shown as *f. annulata* presents a problem of nomenclature as the four specimens found could be assigned other names.

One specimen may be either weak *annulata* (from Majerus & Kearns, 1989) or *pruni* (from Mader, 1926-1937); another specimen could again be weak *annulata* (Majerus) or *interpunctata* (Mader), the other two identical specimens do not appear in either work, as they appear to be slightly immature having markings with the formula of 3 + 1 + 2.4. I have "lumped" them together as *annulata*.

#### REFERENCES

- Mader, L. (1926-1939). *Evidenz der palaarktischen Coccinelliden und ihrer Aberrationen in Wort und Bild*. Vienna.
- Majerus, M. E. N. & Kearns, P. W. E. (1989). *Ladybirds*. Richmond Publishing Co.



## MIGRATION OF LARGE WHITES AT BRADWELL-ON-SEA, ESSEX

by D.A. Crome (6896)

On 18th July 1992, a sultry overcast morning, my wife, toddler son and I set off at approximately 10.30am along the footpath to St Peter's on the Wall at Bradwell-on-Sea.

The field on the right-hand side was planted with clover, and scores of Large whites (*Pieris brassicae*) were seen flying across the field. On reaching the church, the field to the left, up to the sea wall, was also planted with clover, and now hundreds of the Large whites could be seen, along with Gatekeepers (*Pyronia tithonus*), Small whites (*Pieris rapae*), Small skippers (*Thymelicus sylvestris*) Small tortoiseshells (*Aglais urticae*) and a single Clouded yellow (*Colias croceus*).

We continued to walk along the leese of the sea wall for about half a mile before scaling the wall to reach the shore, with the tide well out.

Over the next hour, whilst having my sandcastles demolished, I noticed a constant stream of Large whites flying up the Blackwater Estuary, across the mudflats, and then scaling the sea wall against the offshore breeze.

By midday the sun had come out, and it was too hot to stay on the shore, so we walked back along the sea wall. On reaching the clover field at the top of the sea wall, an amazing sight greeted us. The field was covered in a snow storm of thousands of migrant Large whites, which were congregating to replenish their reserves before continuing to fly on inland. A further two Clouded yellows and a Painted lady (*Cynthia cardui*) were seen amongst them.

I have never before seen so many butterflies at once, and have only read of such sights reported by eighteenth and nineteenth century lepidopterists.

(Editor's note: By the following week they had reached Cambridge, about as far from the coast as one can get, in sufficient numbers to attract the attention of the media. Both the local paper and Anglia Television News publishing alarmist items about the damage they were going to cause to farmers and gardeners. Curiously, BBC TV News, whilst mentioning them, concentrated on showing the equally (at least in Cambridge) common Peacock butterfly (*Inachis io*) which may well have also migrated over from the Continent.)

## CONVOLVULUS HAWKMOTH IN CAMBRIDGESHIRE

by Michael E.N. Majerus (4027)

I wish to put on record the finding of a female *Convolvulus* hawkmoth (*Agrius convolvuli*) on 28th September 1991, at Histon, Cambridgeshire. The moth was noticed fluttering on the ground, in a village garden, shortly after noon, by Mrs Tolliday. She captured it and retained it alive until Monday, 30th September when it was identified by Miss Carys Jones who passed it on to me. The moth was retained alive for 17 days being fed on a honey and water solution, but failed to oviposit despite fresh *convolvulus* being supplied daily.

I believe that this hawkmoth has rarely been recorded in Cambridgeshire previously; Heath and Emmet (1979) noting 1-3 recordings for the county. I have retained the specimen.

### REFERENCE

Heath, J. and Emmet, A.M. (1979). *The Moths and Butterflies of Great Britain and Ireland: volume 9*. Curwen, London.

(Editor's note: Over the last 40 years I have seen or heard of about a dozen in Cambridgeshire, although, for various reasons, most of them have not been reported in the literature.)

## DEATH'S-HEAD HAWKMOTH IN BUCKINGHAMSHIRE

by Michael E.N. Majerus (4027)

On 31st July 1992, a fully-grown larva of the Death's-Head hawkmoth (*Acherontia atropos*) was found, by Lady Susan Smith, while digging potatoes in her garden at Marlow, Buckinghamshire. This larva was sent to me via Dr Bill Amos. Receiving it laid on screwed up newspaper in a plant pot on 4th August, I noted that it had already changed colour and contracted substantially in length, prior to pupation. Fearing that the travel and disturbance might already have been too much for it, it was covered and left completely undisturbed for a fortnight. A check on 18th August revealed that it had pupated successfully, a gently pressure on the pupa showing it to be alive. The pupa was kept undisturbed at ambient temperature in an unheated office, and the imago, a female, emerged on 6th September. This was a pleasing result, as South (1961) states that when pupae are turned up out of the ground by potato diggers they are almost certain to perish. One must presume that given the advanced stage of the larva's development when found, the mother (presumed to be an immigrant) must have arrived in Britain in early to mid June.

### REFERENCE

South, R. (1961). *The Moths of the British Isles* (4th edition). Frederick Warne, London.

## PRESIDENTIAL CONTRIBUTION

by Paul Waring

*Windmill View, 1366 Lincoln Road, Werrington, Peterborough PE4 6LS.*

I was pleasantly surprised when I was invited to be President of the AES for 1992/93. After all, I had not served on the Council before. I also associated the post with those of greater years and experience. To mark the year of office I wanted to contribute something to the *Bulletin* which would convey the essence of what the AES has meant to me since joining as a ten-year-old junior member in 1968. Casting about for a subject, I decided to reject those with which I had professional as well as amateur involvement, although strictly the word amateur means someone who does things for the love of it and this certainly applies to my paid work. In any case my work on the "protected moths" is described elsewhere (Waring, 1987, 1990, in press, a) and the news is regularly up-dated through the Moth Report in the excellent bi-monthly *British Wildlife* magazine (available from BW Publishing, Lower Barn, Rooks Farm, Rotherwick, Basingstoke, Hants RG27 9BG). The National Network for the Recording and Conservation of the Rarer British Macro-moths, which was formed in 1991, is a better candidate because the network is critically dependent on the support and input of amateurs, recording moths for the love of it. However I spoke about the aims of the Network at our annual exhibition and have already prepared separate articles on the subject, for this *Bulletin* as well as elsewhere (Waring, 1990, 1991a, in press a, b, c), in a last trawl for records for an Atlas the Joint Nature Conservation Committee will be publishing in 1993.

More than anything else, the AES has conveyed to me the spirit of adventure, of exploring new places in Britain and abroad and recording the insects seen so that others can share the experience and knowledge gained. I have enjoyed numerous such articles in the *Bulletin* over the years but must pay a special tribute to Peter Cribb, who has contributed so many of them. His articles are particularly fascinating, valuable, and sometimes disturbing, now that he is revisiting some of his earlier destinations and reporting on the changes he is observing. I have never been to most of the European places that have featured in the *Bulletin*, but when I get the opportunity to go abroad I certainly leaf through the Indexes of my run of *Bulletins* to see how others got on and to pick up references to useful literature about the area.

The *Bulletin* provides a valued outlet for reports of trips away from home. Equally important, it provides a welcoming place for the young or inexperienced entomologist to submit his or her first publication. If you can find a copy of the 1974 *Bulletin* (33: 77-78) you will find my own first publication, entitled *Observations on a New Forest burnet colony*.

The article is actually about some observations I made on a small colony of Six-spot burnet moths *Zygaena filipendulae* and their parasites in the New Forest. I don't remember the title being a deliberate play on the "New Forest Burnet" *Z. viciae*, at the time, and I would avoid such a potentially misleading title today. However I still have the kind letter I received from J.H. Kenward, telling me about the parasitic wasps and flies that have been recorded from pupae and how to recognise the damage caused by each. I still find my observations of a male burnet visiting other cocoons early in the emergence period a fascinating one.

I continued reading the *Bulletin*. For years I never actually met any other members of the Society for fieldwork together. I saw them at the Annual Exhibition. The huge turn-outs for this event convinced me that I was far from alone in my fascination for insects, but the Exhibition wasn't very good for getting to know other members; we were all too busy getting kitted up with books and equipment for next year's fieldwork. The *Bulletin* was the mouthpiece of the Society and, for me, the principal line of communication. Obviously older or more confident members contact others in the local area, via the members' address list, but as a teenager with school-work, exams and my own circle of friends, I didn't do this. The insect work continued however.

Bicycles and basic camping gear meant I could range further afield, in company or alone. Holiday jobs as a hospital porter and loading trucks for British Road Services paid for a Robinson trap to operate at home and a Heath trap and battery which I could carry on the bike. It was an era of Westerns on the TV, and I'm sure what hooked me and millions of others was the sense of freedom, open spaces, scenery and excitement these films conveyed. The articles by Peter Cribb and others in the *Bulletin* were a tangible equivalent in the real world. You don't need to travel as far as they to experience the same excitement and contact with nature of course. I felt I'd really arrived as I sat under the stars, eating a can of beans, by a sugared fence-line, with actinic light blazing like a large blue glow-worm in the distance — and I was only on some rough ground down by the canal behind my parents' house!

The excitement of the great outdoors is a major part of my interest in pursuing entomology. The excitement of getting involved with the insects themselves is, of course, the other aspect I so enjoy and would like to share with others. One example from my last year at school will suffice to illustrate the feeling I know motivates many other members to carry on with insects. I choose my experiences with the Oak eggar, *Lasiocampa quercus*. Firstly there was the thrill of assembling males to a virgin female I had bred for the purpose. The previous year I had got to know Rear Admiral A.D. Torlesse, who lives in the same village as my grandparents, in the New Forest. We caught a female Oak eggar in his

light trap, she laid twenty-one eggs and with great satisfaction I overcame what, to me, was the considerable challenge of bringing the resulting larvae through the winter. That July I returned to the heathlands at Sway and set one of the females up, just as described by R.L.E. Ford in what was my bible in those days, *Practical Entomology*. I knew just what to do because I'd read the relevant passage many times over the winter in eager anticipation. But would it work? Had I kept the larvae in synchrony with the wild population? The excitement of seeing the first warm brown male, hurtling in a wide sweep over the heathland to my female was indescribable!

I did not stop at assembling the Oak eggars but reared another generation from the matings I obtained and became interested in the differences between those in northern Britain, which take two years to complete their life-cycle, and those in the New Forest, which do it in one. I was unaware of much of the previous literature on the subject because I had no access to scientific journals and did not know how to find my way around them. I decided to rear the two forms side by side in the same outdoor conditions and see if the northern ones developed in one year as my southern ones had done. Once again the AES played a part in two ways. I obtained my stock of Northern eggars at the AES Exhibition and the results of my experiences were published in the *Bulletin* (36: 145-149, 1977). Once again this resulted in a helpful letter, from Brian Wurzell, informing me about patterns of geographical variation, clines and other such things, and pointing me to helpful literature. Incidentally, my above article states that I hoped to provide in a future *Bulletin* the details of any emergences of the Northern eggars if successful in 1977. I would like to take this opportunity to report that I obtained three males and a female from the five pupae I reared. Two of the males emerged on 5th June 1977, by 8.00 hours and 12.00 hours respectively, the third on 8th June 1977, by 8.00 hours and the female on 13th July 1977. All were slightly smaller and darker than their southern counterparts and I still have the specimens. The significance of these results is that the Northern eggars took two years to complete their life-cycle even when reared in southern conditions in which Oak eggars reared alongside them took just one.

The AES didn't start my interest in entomology but it has certainly introduced me to sources of information, help and kit that enabled me to develop my interest and enjoyment. I hope that the article which follows will do the same for others. As President I would just like to make a couple of points before we get stuck in. The first is the continuing need to collect voucher specimens of some Lepidoptera so that records can be confirmed and verified in the future. The second point concerns the need to co-operate with and work with other wildlife organisations.

Starting with the issue of voucher specimens. You will see from the following article that I collected some of the butterflies and moths that I found in my travels. The issue of collecting will continue to be debated in this *Bulletin* and elsewhere — there have been numerous articles this year alone. However, collecting a few voucher specimens, as distinct from collecting large numbers of each species for trade or whatever, can be as necessary for butterflies in some parts of the world, as for other groups of insects where there are large numbers of confusingly similar species or where the fauna is poorly known. If you own the necessary equipment and have it to hand, photographs can go a long way to providing the basis for making identifications and substantiating records. However, photographs sometimes let you down. This is because diagnostic features may be on the underside of the insect or on some other part that is not visible or requires dissection. In Britain the identification guides to butterflies are so good and so portable that they tell you what to look for so that you can check your identification on the spot. For Africa there is now an almost comprehensive identification guide for butterflies (D'Abrera, 1980) although I did not have access to a copy when I was on the safari that I am going to report. D'Abrera's book is far too big and expensive to carry around in the field and many specimens need to be examined carefully in a study or lab to make certain of their identification, especially if the results are intended for publication. For African moths there are no comprehensive books and specimens have to be compared with those in collections in museums and elsewhere. Some specimens take years to identify. We should all make an effort to publish our more interesting results but we must make every effort to be accurate and keep evidence so that our records can be checked. On many occasions photographs will suffice but they are not the complete answer. I do wish I had possessed the camera gear to take close-up photographs of the live insects during my early days however.

I virtually stopped collecting British moths as well as butterflies back in the late 1970s, partly as a result of the debate in the *Bulletins* of the day. However, I was forced back to keeping voucher specimens of moths that are particularly difficult to identify or of finds that were especially interesting or unusual after some of my records were questioned and I'd like to conclude this point with a couple of examples.

In 1981 records of the August thorn, *Ennomos quercinaria* and Slender brindle, *Apamea scolopacina* from my light-trap near Ambleside were published in *Birds of Cumbria* (Kydd, 1981). Bill Kydd pointed out that such records were particularly unusual in Cumbria and was I absolutely sure of the identifications? Fortunately I had kept one of the Slender brindles I'd captured there and the record could be confirmed. As for the August thorns, I had nothing. It is more likely they were September thorns, *Ennomos erosaria*, but I have no specimens to check.

This was before Bernard Skinner's excellent guide (Skinner, 1984). I had used the illustrations of the thorns in South (1961) to make my identification and although I had seen genuine August thorns once or twice in the New Forest I had nothing else to back me up. Even more dramatically, during the course of entering data on computer for the JNCC Atlas I began recently to question one or two of my earlier records myself. According to my notebooks I recorded a single Barberry carpet *Pareulype berberata* at light in Kidlington, Oxfordshire, on 23rd June 1979. At that time I did not realise its significance and had no idea that only two or three colonies of this moth were then known in Britain, because the account in South (1961) was so out of date. The record has been lodged with the local biological records centre at Woodstock for years but I'd forgotten about it until I started collecting the Oxfordshire data together. The record does not appear in my 1991 review of the Barberry carpet (Waring, 1991b) for this reason. I was doubtful of the record when it came to my attention and as I waited for the next opportunity to visit my parents and hunt through my old store boxes my doubts grew. There was no guarantee the specimen would be there because I was keeping so little at the time. As it turned out I *had* kept the crucial specimen, probably because it was worn and, being the first I'd seen, I wanted to preserve the opportunity for obtaining a second opinion. I am extremely grateful for my sound judgement, for this has allowed me and others to examine and confirm the identification years later. It is indeed a female Barberry carpet. The record is doubly interesting in view of Martin Corley's records from Oxfordshire at the same time (which are included in the above review).

As the real price of suitable photographic equipment comes down we should not close our eyes and minds to the fact that budding entomologists are gaining access to cameras and developing the skills to use them at an earlier age. In this way they will have less need to collect the insects themselves. The photograph and video-tape are already beginning to replace the preserved specimen where its purpose is simply as a memento of a pleasurable day in the field. The costs of camera and film are still such that this route is not open to all however, and the problems regarding species which cannot be identified without dissection remain, let alone the logistical difficulties of taking all the necessary photos in the field. In addition I value my experiences with breeding and studying insects in captivity. That experience is now proving invaluable in the Species Recovery Programmes for some of Britain's rarest moths (Waring, 1990). My experience was gained by working with species I found in the gardens and rough ground where I lived and did not involve any risk to threatened species or any trespassing or collecting on nature reserves or other special sites. Currently these opportunities are open to all. We must act responsibly, be sensitive to the viewpoints of others and

make the effort to explain our work if we are to preserve these opportunities for the next generation without creating suspicion, unease or animosity. This brings me to my second point, co-operation with others, in particular other wildlife organisations.

I think all members are agreed that we wish the populations of insects we discover to continue long after we leave the site. Many of us visit local populations year after year just to see how they are doing, like old friends. When we find sites damaged or destroyed unnecessarily we feel saddened and angered and want to make sure the same does not happen elsewhere. The AES could be more effective at channelling these feelings into action. The AES handbook *Habitat Conservation for Insects* is a major step and it is pleasing to report that it has been our best-selling publication ever. Hopefully many potentially damaging operations will not now take place, as a result of advice in the book. The eyes, ears, awareness and experience of AES members, and the data that we collect, can be and in many cases are being put to good use in defending and managing habitats. Sometimes the concerned AES member still finds he or she is a lone voice. We must find ways of putting the weight of the AES behind him or her when needed. The key is more effective communication. If members hear or feel that a site is being damaged, mis-managed or simply note that certain species are declining, let us all know via the *Bulletin*, or contact the editor, so that others have a chance to help. We must also continue to develop contacts and work with other organisations, both individually and collectively. The conservation organisations are valuable allies in conserving insects for everyone to enjoy, even if the main objectives of some of them are to cater for plants or birds or whatever. Organisations are anonymous and difficult to get to grips with. I recommend the individual approach and let's remember that not all members of one organisation act or behave the same. You'd be surprised how many RSPB members operate light-traps or record dragonflies, particularly in periods of the year which are quiet in terms of bird interest, and how many members of Butterfly Conservation are long-time members of the AES. I have been a member of all three for years. The RSPB, for example, have produced a report on the butterflies and notable moths recorded from their reserves and are keen to take their habitat requirements into consideration in the management of reserves (Cadbury, 1990). Gradually more and more people in every conservation organisation are coming to realise the interest and importance of including invertebrates in survey work, in site assessment and defence and in planning practical management. Where members appear to be having difficulties in their representations on behalf of insects and in carrying out useful work on insects, I am sure that most of these can be talked through and solved in time, but it may not happen overnight. As



more parties become keen to find out what insects and other invertebrates are present on sites and familiar with the techniques that are necessary for survey work and reliable identifications, so we shall find that the skills that AES members have developed will be increasingly in demand.

That's enough of the presidential message. Now come join me in Africa — mosquitoes, sweat bees and all!

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#### ADVISORY PANEL — AFRICAN BUTTERFLIES

M.A. Newport (8789), 7 Trinity Road, Four Oaks, Sutton Coldfield, W. Midlands B75 6TH has been appointed as our Adviser on African butterflies. Please add to your copy of the list sent in October.

## A BUTTERFLY AND MOTH SAFARI TO BANGANGAI GAME RESERVE ON THE SUDAN/ZAIRE BORDER

by Paul Waring (4220)

1366 Lincoln Road, Werrington, Peterborough PE4 6LS.

From January 1981 to March 1983 I was based in the southern Sudan, working on an international project to assess the environmental effects of the construction of the Jonglei Canal (see Howell, Lock & Cobb, 1988). During periods of leave I was able to travel from the swamp-lands and plains of Jonglei Province to visit two of the forest areas within southern Sudan — the Imatong Mountains on the border of Sudan with Uganda and the forests of Bangangai on the border of Sudan with Zaire. In both places I made observations on the butterflies, moths and other wildlife and what follows is an account of my trip to the Bangangai Game Reserve in early April 1982.

I set out for Bangangai from our swampside camp at Nyany on 31st March on a Landrover bound for Juba, the capital city of southern Sudan. Nyany (approximately 6°56'N 31°26'E) is an old cattle camp-site in Jonglei Province, about 10km east of Jonglei Village, between Bor and Malakal (see Fig. A). We drove along the graded earthen road in the cool of the evening through the dry acacia woodland to the small town of Bor. The journey was memorable for the sight of a civet, *Viverra civetta*, after dark. We watched the civet shuffle quickly across the road in the headlight beams, the long hairs between its flank and belly flapping on folds of loose skin as it moved. Next morning at 5 am we moved off for Juba, encountering a zebra, *Equus burchelli*, knocked down on the road 100km north of Juba. Dinka tribesmen were in the process of dismembering the carcass. Once in Juba I caught a lift with a member of the International Voluntary Service, Janice Heale, as far as Yambio, where I was met by Chris Hillman who took me on to Bangangai. Chris is a zoologist who was then working at Bangangai on the bongo antelope, *Tragelaphus euryceros*, in a project funded by the New York Zoological Society (Hillman, 1987).

Bangangai is a Game Reserve of 170 square kilometres and consists of a narrow strip of habitat along the Sudan/Zaire border (4°50'N, 28°00'E), 30km east of the point where Sudan, Zaire and the Central African Republic all meet and approximately 500km west of Juba (Fig. A). Molley (1957) and Hillman (1987) describe the area as rather flat, overlying red ironstone laterites occasionally relieved by rounded gneiss domes. Smith (1949) describes the Bangangai/Yambio area as hill and valley soils undergoing geologically rapid erosion with parent rock masses reducing in size and the soils on the slopes washing away into the U-shaped valley bottoms. The vegetation consists of a mosaic of

Zairean-type high-rainfall forest patches interspersed with the open woodland and savannah grassland much more characteristic of southern Sudan. The forest and woodland vegetation types intergrade and there are no clear boundaries between them. The vegetation mosaic is largely the legacy of a history of man-induced fires in the area and the amount of forest is being steadily reduced. At Bangangai the rains fall mainly between March and October and the rainfall is high, averaging 1200-1500mm annually. Rainforest is the climax vegetation in these conditions and this is shown by the relict patches of forest, relict forest

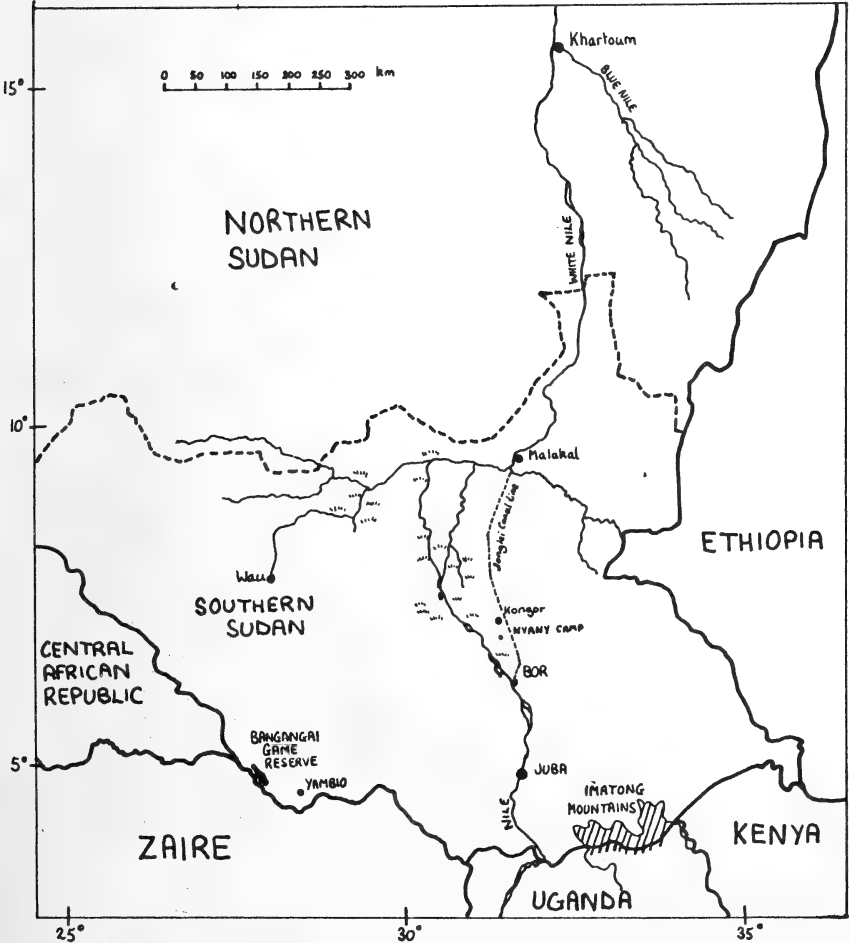


Fig. A. The location of the Bangangai Game Reserve on the border of southern Sudan with Zaire.

trees in savannah woodland and by the ease with which forest tree species recolonise the savannah when fire is excluded (Harrison and Jackson, 1958). The rain forest can be recognised in that it typically consists of canopy trees 30-50m tall with long straight trunks, often buttressed at the base, second storey trees from 15 to 30m tall, usually not so straight, more copiously branched and with less tendency to form buttresses, a shrub layer 4 to 6m tall, often very dense with numerous creepers and lianes and a ground layer of herbs and grasses which is usually sparse and may be absent. Such primary forest at Bangangai remains mainly along the sloping banks of rivers and streams where it benefits from the extra water supply of the streams and the protection the banks afford against fire and in this situation is referred to as gallery forest (Anon, 1981). The gallery forest is extremely important in reducing soil erosion.

Much of the remaining forest has been affected by slash and burn cultivation and has formed dense secondary thickets or has recently deteriorated to savannah woodland. The area used to be riddled with pits dug by the Zande to trap elephants on migration when they move into the forest in the rainy season (Molloy, 1957), and it has been the site of numerous camps and refuges during the recent civil wars, so it has a history of disturbance by man. New settlements and the remains of old cultivation plots are frequent.

The forest consists of a wide range of trees including massive kapok trees, *Ceiba pentandra* (Bombacaceae) with huge buttress roots as shown in Plate J, Fig. 2. The characteristic dominants of the region are the mahogany, *Khaya grandifoliolia* (Meliaceae), *Erythrophleum guineense* (Leguminosae), *Cola cordifolia* (Sterculiaceae) and *Syzygium guineense* (Myrtaceae) according to Harrison and Jackson (1958) which is the standard reference work on the natural forest vegetation of the Sudan (Persson, 1975). *Canarium schweinfurthii*, (Burseraceae), *Pycnanthus kombo* (Myristicaceae) and *Sarcocephalus esculentus* (Rubiaceae) are also mentioned by Smith (1949) as features in this vegetation zone. Among other tree species identified in the forest were *Afzelia africana*, *Albizia coriaria* and *Tamarindus indicus* (all three Leguminosae) and *Anogeissus schimperi* (Combretaceae) and Hillman (1987) lists others. Herbs were sparse in the forest but the forest edges sometimes had dense stands of herbs including *Acalypha racemosa* (Euphorbiaceae) and *Dyschoriste perrottetii* (Acanthaceae) and creepers such as *Cissampelos mucronata* (Menispermaceae) and *Secomone afzelli* (Asclepiadaceae) (Hillman, 1987 and pers. comm.).

The savannah woodland (Plate J, Fig. 3) consists of trees such as *Acacia seyal* and *Bauhinia (Piliostigma) reticulata* (Leguminosae), *Combretum ghasalense* (Combretaceae), *Hymenocardia acida* (Euphorbiaceae), bushes of *Grewia mollis* (Tiliaceae) and *Capparis*

*tomentosa* (Capparidaceae) and various species which can be either bushes or trees including the Kaffir Orange, *Strychnos innocua* (Loganiaceae), *Nauclea latifolia* (Rubiaceae), *Vitex doniana* (Verbenaceae) and the custard apple *Annona senegalensis* (Annonaceae). *Carissa edulis* (Apocynaceae) is a common understorey creeping shrub of the forest edge which extends into the savannah. Clearings in the woodland have been maintained by fire for generations. The Zande conserve stands of long grass as game coverts which are burned in the dry season. This grassland is dominated by *Hyparrhenia edulis* (Gramineae) which reaches over 4m tall at the end of the flowering season and regenerates from seed after the fires. Tsetse fly prevents the keeping of cattle and goats. A variety of crops are cultivated including cassava, bananas, sorghum, peanuts, sesame, maize, pumpkins and sweet potatoes.

Chris had established a small camp in the forest (Plate K, Fig. 4), which he occupied with his wife Sheila, his Zande trackers and their relatives. I pitched a tent there for nine days before returning to Jonglei Province which took another four days using the infrequent local buses and catching lifts from lorries that transport sacks of sorghum and other foodstuffs between towns. Getting around southern Sudan was difficult unless you had your own vehicle and fuel. Petrol, diesel and spare parts were not generally available and the present civil war can only have made matters worse.

Before I got to grips with the butterflies Chris introduced me to the larger animals of the forest, including blue duikers, *Cephalophus monticola* and black and white colobus monkeys, *Colobus abyssinicus*. The forest echoed with a loud dawn chorus and later with calls of Ross's turaco, *Musophaga rossae*, the great blue turaco, *Corythaeola cristata* and two species of Frankolin. Black and white-casqued hornbills, *Bycanistes subcylindricus*, and blue wattled hornbills, *Ceratogyma atrata*, were often seen and when one of the latter came gliding overhead into a nearby tree it made a droning sound like that usually associated with bomber aircraft from the second world war.

One day we were out following a game trail looking for bongo tracks and some chimpanzees, *Pan troglodytes*, were hooting loudly and crashing around, unseen in the trees of the gallery forest on our left. Then our tracker heard two quiet contact calls on our right and beckoned me up under a bush on a termite mound. We sat quietly and after a couple of minutes a group of fifteen chimpanzees filed past us, one after another along the game trail, walking on their knuckles — gorilla fashion, to join the chimps in the trees. The party comprised all sizes of chimps including several large old females with very young chimps riding far back on the rear ends of the older ones.

I also succeeded in seeing the elusive bongo. To do this I spent three nights 30 feet up on a platform in an *Afzelia africana* tree over a natural salt lick originating from a former termite mound (Fig. B). These salt



Fig. B. *Afzelia africana* tree with platform above saltlick much visited by forest mammals and butterflies.

licks are also frequented by butterflies. The termite mounds act as a nutrient dump, the termites collecting plant material from the surrounding area and feeding and defaecating in the mound over a period of years. The lick may have been opened up by elephants but the earth was pock-marked with tracks of bush pig, *Potamochoerus porcus*, bushbuck, *Tragelaphus scriptus* and bongo which had come to lick the saline clay soil. I watched a bushbuck doing this right below me. In the earliest light of dawn at the end of my first night's vigil in the tree I saw a lone bongo bull standing like the proverbial "monarch of the glen" behind the salt lick. He had emerged quietly from the edge of the forest and walked slowly over to a dry stream bed which he followed without actually visiting the salt lick. Later three white-naped pigeons, *Columba albinucha*, flew in and perched in a dead tree. This pigeon is an endemic species with a tiny range, occurring only in this area and in parts of northern Zaire and western Uganda (Williams and Arlott, 1980). The forest and the above wildlife formed an exciting backdrop to my observations on the butterflies and moths.

During the nine days at Bangangai I recorded over 90 species of butterflies and moths. The rains were overdue and imminent and while there were plenty of butterflies to keep me occupied for my stay many were not in fresh condition and the Zande trackers talked of many more "fufurufu" later in the year. They used the name "fufurufu" to describe both butterflies and moths, both brightly coloured and drab. In the last two days of my stay we had some heavy showers and I noted several freshly emerged specimens of species I had already seen, in particular the *Euphaedra* spp. The butterfly species in Bangangai were almost all different from those that I recorded in 27 months in Jonglei Province, with the notable exceptions of the following: Citrus swallowtail, *Papilio demodocus*; three nymphalids in the genus *Junonia*, which is widely referred to as *Precis*, these being *P. oenone* and *P. orithya*, which are blue and black nymphalids and *P. hierta*, which is bright butterscotch yellow and black with a small amount of blue; *Danaus chrysippus* — the African monarch — specimens with white hindwing and others with orange hindwings were present although the white hindwing form was more frequent; *Hamanumidia daedalus* (Nymphalidae), commonly called "the guinea fowl" because of its grey and white speckled wings; and *Melanitis leda* (Satyridae), the Evening brown, which occurs throughout Africa, tropical Asia, northern Australia, the Comoros, Aldabra and the Seychelles (Carcasson, 1981). The Evening brown, true to its name, I saw most often at dusk or in late afternoon, flying through our camp in Jonglei Province and I sometimes disturbed specimens from rest during the day in shady places such as under bushes on termite mounds or under the eaves of the thatched mud huts.

The ivory and black Swallowtail, *Graphium angolanus* ssp. *pylades* was seen on the outskirts of Juba amongst scrub on the small mountain which is variously known as Jebel Koruk or Jebel Coujour. At Bangangai I found one of its green larvae feeding on the custard apple, *Annona senegalensis*, on 6th April. It pupated two days later and the adult emerged on 20th April.

At Bangangai the most numerous butterfly during my visit was *Cymothoe caenis*, a medium-sized nymphalid in which the male is ivory with large black spots on the wing margins (Plate I, Fig. 1). The female is quite different and varies enormously from various shades of chestnut and brown to cream and brown with brown chevrons around the wing margins. This species occurred in enormous numbers along shady damp tree-lined stream beds and was one of the few species I saw while walking deep within the forest, where much of the butterfly activity probably occurs out of sight up in the tree canopy. *C. caenis* entered all habitats. It was plentiful under mango trees by the road, was seen visiting the sweet-scented, white clusters of *Carissa* flowers on the edge of the woodland and was also common in the clearing around the camp. The small scale and close juxtaposition of these different habitats and the tendency for butterflies to fly between them made it difficult to recognise if species were dependent on particular habitats for breeding.

Also seen deep in the forest was *Ariadne enotrea* which Carcasson (1981) describes as a forest species. *A. enotrea* is a distinctively-shaped medium-sized nymphalid which varied from deep brown to slate blue or ash grey. Other species seen in the forest included *Pseudacraea eurytus*, *Hypolimnas dubius* and several species of satyrid butterflies of the genus *Bicyclus*. These brown butterflies, some of which are marked with gold and black ringlets, were difficult to distinguish in the field at first. I collected a series to confirm their identities. One, which I referred to as the pale-tipped ringlet, has a fawn marking near the forewing tips. It proved to be *Bicyclus safitza*. As with many other satyrids, it flew with a slow, flapping, "hopping" flight low down near the ground between creepers and the stems of any underbrush. Slightly larger with even paler tips, more rounded wings and a lighter and more variegated underside was *Bicyclus mandanes* which was common along the stream beds in the forest and also reached the edges of the forest. More similar to *B. safitza* was *B. angulosus*. A smaller and less rounded-winged species with greyer undersides was also found along a stream bed in the forest and proved to be *B. taenias*. The large leaf butterfly *B. sebutus*, which is shaped and

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Plate I, Fig. 1. Some of the butterflies seen at Bangangai. Left to right: *Pseudopontia paradoxa*, *Libythea labdaca*, *Cymothoe caenis* male, *Bebearia tentyris* male, *Salamis parhassus*, *Cymothoe beckeri* male, *C. caenis* female, *Bebearia mandinga* female, *C. beckeri* female, *Cymothoe sangaris*, *Catuna erithea*, *Gnophodes chelys*.







Fig. 2. The author and a local tracker among the huge buttress roots of a kapok tree (*Ceiba pentandra*) in the forest.



Fig. 3. The savannah woodland on the edge of the forest at Bangangai .



Fig. 4. Chris Hillman's camp at Bangangai



Fig. 5. Stream bed of damp soil in the forest, visited by many butterflies.

PLATE K

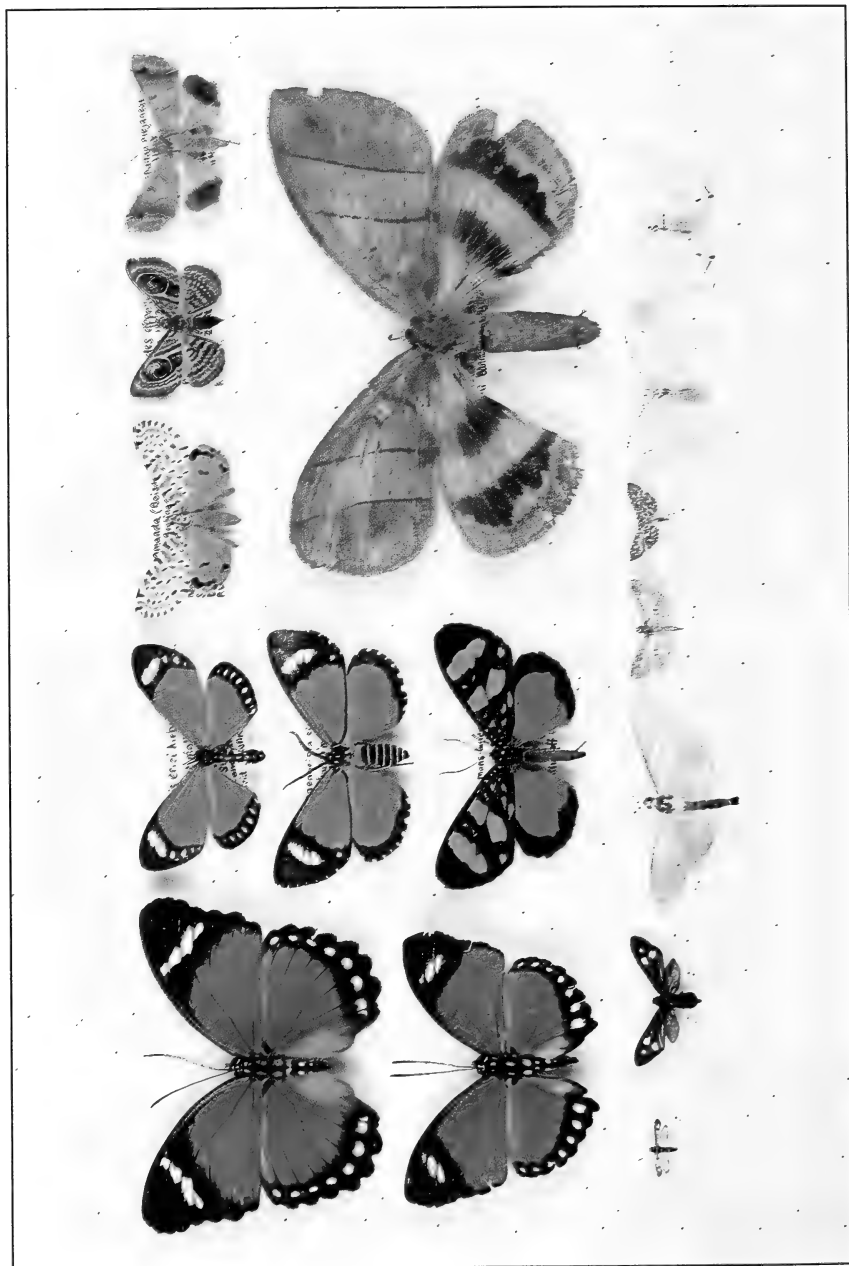


Fig. 6. Some Bangangai lepidoptera. For names see page opposite.  
 PLATE L

patterned like a dead brown leaf on the underside and has smoky blue patches on the upper forewings, was also present at the stream-bed, as were two other large satyrids of the genus *Gnophodes*. The latter have angular hooked wings. Both these *Gnophodes* species have similar brown forewings marked with yellow and the forewing tips peel apart slightly when at rest, instead of being pressed together. I noticed that some specimens were larger than others. These proved to be females of *G. chelys*, but the smaller ones were not males of the same species as I first thought they might be, but were *G. betsimena parmeno*. This became more obvious when they were set. My series contains a male with a huge ribbed patch of scent scales or andraconia on the forewing and two females without this sexual character. The undersurfaces of the wings are marked with dark brown whereas in *G. chelys* they have a uniform tawny background colour.

The relatively small number of butterfly species seen deep in the forest may have been due to the late arrival of the rains. Numbers of species and individuals increased enormously however at the stream beds through the forest where moisture, salts and sunny spots were available. I made several visits to one of these streambeds which was by a salt lick (Plate K, Fig. 5). The Zande called this place Nangbutoko. Here the numbers of *C. caenis* had to be seen to be believed, particularly on my second visit during which a hot sun shone above the tree canopy in contrast to the rather overcast weather of my first visit two days previously. It certainly seemed that butterflies were converging on the site from the surrounding forest. Specimens of *C. caenis* were rising up at every footstep and skimming and gliding a few centimeters above the damp soil to settle and feed a little further on. I came upon a new species of butterfly every few metres as I followed the stream a couple of hundred metres to its head. Shrubs and bushes sprang from the banks and from small islands as the watercourse twisted and turned. The earth of the sandy banks had fallen away and the butterflies were in moist patches at the base of these banks, with a canopy of vegetation intercepting most of the sun overhead. Although I was catching only one or a pair of any species for later identification, I was meeting new species as fast as I could put them into envelopes. I numbered and labelled each after capture, and entered them into a running list in my pocket notebook together with observations on numbers seen and their habits.

*Euphaedra* species were the second most prominent group at the streambed. Several individuals of the large and strong-flighted orange

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Plate L, Fig. 6. Two *Euphaedra* butterflies and a selection of moths from Bangangai. Left to right: *Euphaedra eleus*, *Aletis erici*, *Argina amanda*, *Calloides appollina*, *Trichanua mejanesi*, *Phaegorista similis*, *Euphaedra ruspina*, *Heracilia mons-lunensis*, *Jana eurymas*, *Synanthedon* sp., *Syringura triguttata*, *Stemorrhages sericea*, *Chalcidoptera bilunalis*, *Nausinoe geometralis*, *Micronia albidiorata*, *Dissoprugna erycinaria*.

and black *Euphaedra eleus* flew up and down the streambed and settled on the damp soil. Also seen was the similar looking *E. ruspina* which also has heavy wing margins spotted with white but has shorter hindwings than *E. eleus*. I saw just one *E. ruspina*, resting on the leaves of a bush, wings spread but held back, rather moth-like. This was a particularly interesting observation because I also found a considerable number of large orange and black moths resting on or disturbed from vegetation in this place and these were very similar in appearance to the *Euphaedra* species (Plate L, Fig. 6). As the colour and appearance of these insects are classic warning signals I found myself wondering whether some of these insects were distasteful to predators and if so who was mimicking whom. The moths were extremely obvious, sitting on the upper surfaces of leaves and on branches and trunks and were visible from 20m away, yet they were all in superb condition, whereas many of the butterfly specimens I collected had beak-shaped pieces missing from the wings and other damage which suggested conflicts with birds. I collected two specimens of these moths and later discovered that they are not only of separate species but also belong to different families. One is *Phaegorista similis*, formerly classified as an Arctiid or tiger moth but now considered by some to belong to the Noctuidae or in a separate family Hypsidae, on the basis of its flattened pectinatus antenna, lack of a tymbal and various other features. The other specimen is *Aletis erici*, a geometrid in the subfamily Oenochrominae. The most obvious superficial difference between the two specimens is that the geometrid has a narrow black abdomen with a row of white spots along the dorsal surface and sides; the abdomen of the noctuid is black and orange with white bands rather than spots. Other species both of *Phaegorista* and *Aletis* also have orange wings with black margins and other families have converged on a similar appearance in Africa, such as *Otroeda papilionaris* (Jordan, 1924) and *O. permagnifica* Holland, 1893 (Lymantriidae) and *Heraclia poggei* (Dewitz, 1879) (Agaristidae). The latter is very variable. The *Aletis* species are often stated to be the distasteful models for this mimicry (e.g. Owen, 1971, Carcasson, 1981). Seitz (1929) notes that the larvae of *Aletis* species are also stripey and strikingly marked and that adults of the related *Cartaletis* release a yellow fluid when handled, strongly suggesting that they are distasteful. Seitz speculates that some of the other lepidoptera which have converged on the orange and black pattern are also distasteful. He notes such Agaristid larvae as are known are often brilliantly coloured and of course the African Monarch butterfly, *Danaus chrysippus*, and its stripey larvae are known to be unpalatable to vertebrates.

*Euphaedra medon* was also present but not as numerous as *E. eleus* and completely different in appearance. This is a variable species with

several races, incorporating those labelled *E. spatiosa* in Williams (1971). I collected one of a number of males I saw. These were iridescent green with brown, black and gold markings. The females were chocolate brown with a yellow band across the black and white tip of the forewing. In some other races the females have blue markings. I found the species extremely wary and it was several days and missed opportunities before I succeeded in netting a specimen, which I intercepted as it flew rapidly up the stream and passed me while I was standing to one side of the stream bed.

Other butterflies seen in some numbers included *Cymothoe beckeri*, and *Catuna erithea*. *C. beckeri* is another large nymphalid in which the male and female are completely different in appearance. The male is orange with cream wing bases, the female at over 80mm in span, has bluish brown forewings flecked with cream. *C. erithea* was seen in large numbers at the stream bed but almost nowhere else. The female is noticeably larger but both sexes are brown with a lattice-work of fawn and cream lines across the wings. I also netted a butterfly with wings of a similar pattern but different in shape and wondered if this was mimicking *C. erithea*. It turned out to be a female *Bebearia mandinga*. There are several similar species. In these species all the males are also very similar to each other, but completely different from the females, being orange and brown and without the *Catuna*-like cream flash on the hindwing. I was unaware that there are many of these closely similar species and took only one female and one male. The male turned out to belong to a different species, *Bebearis tentyris*!

A wonderful pair of *Salamis parhassus* floated by. This is a greenish-white butterfly over 80mm in span with a mother-of-pearl sheen. Singletons seen but not caught include a black *Charaxes* sp. and a turquoise-striped *Graphium* swallowtail. White Pierid butterflies included *Belenois calypso*, *Leptosia nupta* and *Nepheronia argia*.

Some exciting encounters included the appearance and then almost immediate disappearance from view of a delicate pale blue-barred nymphalid attracted to a damp patch below a fallen tree. The patch was almost inaccessible due to trailing creepers. The butterfly proved to be *Pseudoneptis ianthe*. Almost in the same place, and whilst pursuing the above, I came across a superb blue-coloured hairstreak-like butterfly with long white tails which were drawn out into a possible false head and upon which the striped markings of the wings converged. The specimen could not be netted. My log book notes that I caught a similar one nearby with shorter tails. This proved to be *Oxylides faunus*.

Then there was the amazing *Pseudopontia paradoxa*, a fragile round-winged Pierid, which has translucent green veins between which are the finest silky membranes imaginable. It is the nearest thing I have seen to a

ghost of a butterfly. It has a delicate slow flight in which it looks a bit like a *Chrysopa* lacewing (Neuroptera).

Eventually I reached the head of the stream. This consisted of a small cavern of orange clay banks on three sides of me with a small pool at the base, surrounded by damp mud marked with hoof prints of forest animals and shaded by gallery forest. It was here that the most stunning butterfly suddenly flew in from the forest to join the butterflies already settled on the mud. It was a red medium-sized nymphalid — intense cardinal red all over. It proved to be a male *Cymothoe sangaris* and I saw two. As I climbed up out of the streambed, completely thrilled by the butterflies I had seen, I was watched intently by a red-tailed monkey, *Cercopithecus ascanius*, up in the canopy. Dorst and Dandelot (1970) refer to this species as the black-cheeked, white-nosed monkey.

Another place I found particularly productive was under a group of mango trees planted in the forest edge. The mangos had fallen to the ground and were rotting. The orange and black *Aletis* moths were more abundant than ever and I also saw several peach-coloured Footman moths, *Argina amanda* (Arctiidae). These look somewhat like *Utethesia pulchella*, except that the pink on the hindwings of the latter is replaced by yellow, and *A. amanda* is a bit larger. The *Gnophodes* species were here, *Bicyclus mandanensis* was frequent, *Euphaedra eleus* and *E. spatiosa* were present, *Cymothoe caenis* was numerous, one *Pseudacraea lucretia* was seen and I saw *Salamis parhassus* again. The mango patch was also the best place to see the nymphalid *Aterica galene* in which the males are chocolate brown with cream spots but the larger females are pale brown with white patches and a rusty tinge on the hindwings. This was also a good place to see the pierid *Mylothris chloris* which I referred to as the Easter cream egg butterfly in my notes, because the white wings have a yolk yellow centre and chocolate or brown edges.

Where the forest has been cleared and colonised by savannah woodland and grassland the pierids were in evidence, particularly the yellow and black *Eurema desjardinsi*, the smaller paler *E. hapale* and the larger white butterfly, *Dixeia orbona*. Also in the open woodland I encountered *Belenois solilucis*, including a courting pair, in which the female is white and the male is lemon yellow.

The White admiral-like *Neptis morosa* was frequently seen gliding around bushes and resting, wings spread, to bask in the dappled sunlight in the woodland.

Lycaenids were fairly common in the open woodland. The species seen are included in the check list at the end of this paper and all have been confirmed by the late G.E. Tite, who spent a great many years working on African lycaenids at the British Museum and at the Hope Collections in Oxford.



The very similar *Leptotes brevidentatus* and *L. babaulti*, were regularly seen. Both are dusky blue with short hair-tails and with ventral surfaces heavily mottled with brown. A more distinctive lycaenid in the same habitat was the orange *Axiocerces harpax*, a female of which I saw in one woodland clearing and a male of which I disturbed among grass and small scrubs near our camp.

Most mornings I found one or two intense purplish-brown lycaenids, *Anthene larydas*, feeding at the urine patches I deliberately created to attract insects on the edge of the clearing near my tent.

Immediately around the camp, and apparently attracted by it, I saw several of the African snout. *Libythea labdaca*, the only representative in mainland Africa of the family Libytheidae. It is a dusky brown butterfly somewhat reminiscent of a skipper in wing shape but looking very upright and triangular in outline when at rest around puddles in the camp. It is known to undertake migratory movements in large numbers within tropical Africa (Carcasson, 1981). As I investigated the snouts I disturbed a male and a female pennant-winged nightjar, *Macrodipteryx vexillarius*, which is apparently a non-breeding migrant to southern Sudan from the south (Williams and Arlott, 1980). The birds flew up from the ground and settled on the far edge of the clearing. I wondered if the nightjars and the snouts might have come to Bangangai together from the same source.

Several species of true skippers (Hesperiidae) were also seen. These comprised three brown species each with pale spotted forewings. The smallest of the three, *Acleros mackenii*, was common around the camp and one flew into my tent. Another species, *Gorgyra aretina*, was netted from rest under the mango trees. A single individual of a much larger species, *Chondrolepis niveicornis*, 36mm in span, was seen and netted flitting around low over the ground in the shaded edge of the clearing. Also seen was the even larger skipper *Coeliades forestan* which I named the "White flash skipper" and Carcasson (1981) calls the Striped policeman, on account of a large white patch on the ventral surface of the hindwing which flashes in flight. I also saw this species on the Jebel outside Juba.

Regarding moths, my visit to Bangangai was not as productive as for butterflies, for a number of reasons. Most importantly I could not bring the Robinson moth trap and portable generator from Jonglei Province because I was hitch-hiking. Also I spent half my nights up a tree watching for bongo. When I was in the camp I experimented with a small fluorescent (but not ultraviolet) camping light on a car battery for an hour after dusk on a couple of nights but this attracted less than a dozen moths. If only an actinic tube had been available! I did better using a wet towel and the aforementioned urine patches which I inspected with a

torch just after dusk. These lures attracted a variety of pyrales including the large pale green *Glyphodes sericea* (wing span 55mm), the smaller brown-banded white *Zebronia phenice*, the white *Palpita unionalis*, which is an occasional migrant to Britain and several other species. No hurricane or Tilley lamps were available either so I tried baits of mangos and bananas mixed during the day and put out in tins at night with a little added golden syrup and *Carissa* flowers for scent. None proved outstanding baits but they attracted one or two large noctuid moths including several specimens of the noctuid *Sphingomorpha chlorea* which Pinhey (1975) refers to as the Sundowner moth or Banana hawk. This moth is widespread in southern Sudan and apparently over most of Africa. I saw it commonly in Jonglei Province, and also around Juba. As the generic name implies, it looks superficially like a hawkmoth, with a passing resemblance to a small Death's-head, *Acherontia atropos*.

Other moth collecting activities were confined to odd specimens encountered during the day. Most colourful were the specimens of the genus *Heraclia* (Agaristidae or False tigers) which look like and are not too distantly related to Tiger moths (Arctiidae). These powerful fliers were occasionally disturbed from undergrowth around bushes, whereupon they would race across the clearings and settle in other bushes. In flight the red and black hindwings are very striking. The forewings are black, disruptively blotched with yellow. Trying to locate them in bushes with their wings shut was not easy and just as you were getting near to these alert moths they would take off again and fly elsewhere.

Also seen while stalking the False tigers was the only Zygaenid I saw during the visit. An iridescent blue specimen with three pale windows in each forewing, it is *Syringura triguttata*, which looks like, and was formerly classified as, a ctenuchid (syntomid) and certainly fooled me! Superficial appearances can be deceptive. A moth with large eye spots on its broad grey brown wings looked like an Emperor moth (Saturniidae) as it fluttered up from rest in the grass on one of my walks. It was captured and later proved to be a noctuid, *Calliodes appollina*.

Back at camp a tiny clearwing (Sesiidae) entered my tent which I left open to act as a Malaise trap. I am sure I would not have come across this minute moth in any other way. Gaden Robinson at the Natural History Museum informs me that I shall have great difficulty in obtaining a correct identification for this specimen because both the museum collections and the taxonomy of the African Sesiidae need revision. It is probably a *Synanthedon* species. Another moth, *Phaegorista leucomelas* (Hypsiidae), was obtained after it had fallen into the tub of rain-water we kept for our domestic supply!

Among undergrowth and dead leaves by a game trail in the forest, I found a large moth (115mm in span), mainly pink with two dark brown bands in the hindwings. Superficially like a saturniid, it proved to be *Jana eurymas*, a member of another bombycoid family, the Eupterotidae, which Pinhey (1975) has named Monkey moths on account of their very hairy bodies. Another Monkey moth, *Hoplojana rhodoptera*, was disturbed from leaf-litter under mango trees on the forest edge.

A striking silver-barred white geometrid-like moth with pointed wings, *Micronia albidiorata*, was disturbed in the forest and also found under the mango trees amongst the fallen fruit. It belongs to the family Uraniidae which is considered by some to be a subfamily of the Geometridae.

Chris Hillman showed me the characteristic communal cocoon (Fig. C) of a species of *Anaphe* or Bagnest moth (Thaumatopoeidae) which he had found two weeks earlier, about 1.5m from the ground on a low bush



Fig. C. Bag-nest of an *Anaphe* species (Thaumatopoeidae) with a side of the nest removed

near the forest edge. The outer envelope of coarse brown silk was approximately 13cm in height and 8cm in width at the widest point and inside I found sixty-one individual cocoons, each 3cm in length. Only nineteen of the pupae were alive and wriggling. The remainder had been attacked by parasitoids or were dead for unknown reasons. There were the exit holes of parasites in the sides of nineteen of the cocoons, and the remains of both dipteran puparia and, in one cocoon, a hymenopterous pupa 1cm in length including the covering of the ovipositor. Four of the cocoons contained a white larva with a red head capsule. The live pupae and parasitoids were taken to await emergences and the outer cocoon was preserved. Only one of the cocoons produced an adult however, and this was malformed. The remainder rapidly began to go mouldy in the warm humid conditions. Comparison of the communal cocoon with preserved ones at the Natural History Museum shows that it is not unlike that of *Anaphe panda* but according to Pinhey (1975) there are other members of this bagnesting genus in Africa. Pinhey also mentions the past interest in exploiting wild-collected bagnests commercially for silk. The initiative was impractical because the trees on which *Anaphe* feeds are often widely scattered at low density within forest and the bagnests are not easy to find and contain urticating hairs.

In spite of the small number of moth species named here, I have no doubt that the area is rich in moths on the basis of the number accidentally found or flushed when walking around. I accidentally disturbed or spotted moths more frequently than in any place I have visited in Britain or abroad.

Many other species of invertebrates were encountered during my stay but there was simply not time to collect and label all the specimens I could have taken, let alone to confront the difficulties of obtaining identifications once the material had been shipped back to Britain. Some of the invertebrates were fascinating to watch, such as the giant millipedes, 10cm in length, marching columns of ants, or the large groups of *Leptoconisina* heteropteran bugs (Alydidae) assembled on the undersides of leaves of a streamside shrub the Zande call Dungua-paranga. Other insects were irksome and included small bees that were attracted to sweat and flies that were inclined to bite. A pseudo-scorpion fell onto my hand from out of the grass thatch of one of the huts in camp. It appears to be *Chelifera cancroides*, a cosmopolitan species that has been recorded in temperate as well as tropical countries all over the world (Harvey, 1990). It has been reported often from grass roofs, haystacks and barns and also from birds' nests (Legg, *pers. comm.*).

On 13th April it was time to leave Bangangai. After breakfast Sheila Hillman kindly gave me a lift to Ringasi which we reached in a couple of hours along muddy roads wet with the previous night's rain and strewn

with rotting mangos. Evidently the local populace couldn't keep up with these fruit. Ringasi was a small quiet "town". There was very little happening, few people around. I put down at the police station to await a passing lorry. The station was manned by Corporal Paul Stephen Udo. His five men were on their rounds. Chickens were clucking in the dust outside. A couple of people passed on bicycles but there were no motor vehicles in two hours. We sat and talked and watched sunbirds visiting a "banga" shrub with yellow trumpet flowers, many of which had fallen to the ground beneath. One of the corporal's friends dropped by, an office worker on leave from the Mobile Oil Company. He played an old Bar-Kays tape on a cassette recorder with tired batteries. A professional hunter from a safari company arrived in a pick-up truck and reported an encounter with a gang of Arab poachers equipped with camels and machine guns. Staff from the Game Department are grossly under-resourced in terms of transport and equipment for there is not the money within this poor country, but even so they have engaged such gangs of poachers in combat in spite of their inferior weaponry.

I used the time waiting for lorries to flesh out the rough notes upon which this article is based and then Corporal Udo invited me to share in an excellent lunch of boiled dried waterbuck and cassava porridge which was much better than the dura dough I was eating in Jonglei Province. Bush meat is very important in the area because of the restrictions on livestock imposed by tsetse. A limited number of cattle are trekked into the area and slaughtered as an additional source of meat as required.

At 14.30 hours I boarded a market lorry bound for Nzara and took my place, among a large group of Zande, mainly women, on top of the sacks of flour. The Arab driver gave me the lift for free. We bumped along the red ironstone road which was lined with mango trees, green and lush, under a sunny blue sky and I surveyed the mixed plots of cassava and other crops which we passed.

The market town of Nzara had lots of small shops and was the base of a German road building team using heavy earth-moving vehicles to improve the road links to Yambio and beyond. From here a local bus delivered me to Yambio where I overnighted with Andy Woolhouse at the Agricultural Institute. The next bus from Yambio to Juba overnighted on the road near Jambo and we slept in our seats, arriving in Juba early on the Saturday morning, which I discovered had been declared the first cultivation day of the season. Sunday and Monday were public holidays in Juba so it was a good opportunity for local people to get their crops planted out and tended. No break for me however. I ran into two of our consultants from the Jonglei project. They had been planning to leave Juba on Sudan Air now that their work was done but the planes were not flying and I spent two hectic days using

all my knowledge and contacts to get them onto the small planes that the foreign aid agencies operate between Juba and Nairobi. That done I was able to return to my "home" at the bush camp in Jonglei Province, and continue my regular weekly butterfly transect walks, moth-trapping, fishing and other activities as the rainy season commenced and the hawk-moths, dung beetles and water bugs began to appear.

### Acknowledgements

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## APPENDIX

Butterflies and moths recorded at Bangangai Game Reserve on the Sudan/Zaire border, 4th to 13th April 1982. The species numbers are those given in the checklist of African butterflies compiled by Carcasson (1981).

Family: HESPERIIDAE  
 Subfamily: Coeliadinae  
 11 *Coeliades forestan* (Stoll 1782)  
 Subfamily: Hesperinae  
 222 *Gorgyra aretina* (Hewitson 1878)  
 295 *Acleros ploetzi* Mabille 1879  
 302 *Acleros mackenii* (Trimen 1868)  
 356 *Chondrolepsis niveicornis* (Plötz 1883)

## Family: PAPILIONIDAE

Subfamily: Papilioninae  
 Tribe: Leptocircini  
 524 *Graphium angolanus* (Goeze 1779)  
 subsp. *pylades* (Fabricius 1793)

## Family: PIERIDAE

Subfamily: Pseudopontiinae  
 556 *Pseudopontia paradoxa* (Felder 1869)

## Subfamily: Pierinae

Tribe: Coliadini  
 563 *Eurema hapale* (Mabille 1882)

564 *Eurema desjardinsi* (Boisduval 1833)  
 subsp. *regularis* (Butler 1876)

## Tribe: Pierini

570 *Nepheronia argia* (Fabricius 1775)  
 632 *Belenois calypso* (Drury 1773)  
 639 *Belenois solilucis* (Butler 1874)  
 654 *Dixeia orbona* (Geyer 1832)  
 678 *Mylothris chlois* (Fabricius 1775)  
 701 *Leptosia nupta* (Butler 1873)

## Family: LYCAENIDAE

Subfamily: Miletinae  
 Tribe: Miletini  
 1224 *Megalopalpus metaleucus* Karsch 1893

## Subfamily: Theclinae

Tribe: Oxylini  
 1266 *Oxytilis faunus* (Drury 1773)  
 subsp. *albata* (Aurivillius 1895)

## Tribe: Aphnaeini

1344 *Axiocerces harpax* (Fabricius 1775)

## Tribe: Hypolycaenini

1592 *Hypolycaena liara* Druce 1890

## Subfamily: Polyommatainae

## Tribe: Anthenini

1734 *Anthene lunulata* (Trimen 1894)1738 *Anthene larydas* (Cramer 1780)

## Tribe: Polyommataini

1869 *Leptotes (Syntarucus) babaulti*

(Stempffer 1936)

1870 *Leptodes (Syntarucus) brevidentatus*

(Tite 1958)

## Family: LIBYTHEIDAE

2100 *Libythea labdaca* Westwood 1851

## Family: NYMPHALIDAE

## Subfamily: Charaxiinae

2217 *Charaxes varanes* (Cramer 1777)

## Subfamily: Nymphalinae

## Tribe: Limenitini

2245 *Cymothoe beckeri* (Herrich-Schaeffer 1850)2278 *Cymothoe caenis* (Drury 1773)2301 *Cymothoe sangaris* (Godart 1820)2329 *Euriphene (Euryphura) ochracea* (Bartel 1905)2394(5) *Euphaedra (Bebearia) tentyris* (Hewitson 1866) subsp. *subtentyris* (Strand 1912)2399 *Euphaedra (Bebearia) mandinga* (Felder 1860)2454 *Euphaedra medon* (Johannson 1763)2506 *Euphaedra eleus* (Drury 1782)2510 *Euphaedra ruspina* (Hewitson 1865)2528 *Hamanumidia daedalus* (Fabricius 1775)2529 *Aterica galene* Brown 17762533 *Catuna eritheia* (Drury 1773)2538 *Pseudoneptis ianthe* Snellen 18822539 *Pseudacraea eurytia* (Linnaeus 1758)2545 *Pseudacraea lucretia* (Cramer 1775) subsp. *protracta* Butler 18742568 *Neptis morosa* Overlaet 1955

## Tribe: Biblidini

2625 *Byblia anvatara* (Boisduval 1833)2627 *Ariadne enotrea* (Cramer 1779)

## Tribe: Nymphalini

2655 *Hypolimnas dubius* (Palisot de Beauvois 1805)2660 *Salamis parhassus* (Drury 1782)2664 *Junonia (Precis) orithyia* (Linnaeus 1758)2675 *Junonia (Precis) chorimene* (Guerin 1844)2676 *Junonia (Precis) terea* (Drury 1773)2692 *Catacroptera cloantho* (Stoll 1781)2707 *Phalanta eurytis* (Doubleday 1847)

## Subfamily: Acraeinae

## Tribe: Acraeini

2749 *Acraea quirina* (Fabricius 1781)2789 *Acraea circeis* (Drury 1782)2840 *Acraea natalica* Boisduval 1847 subsp. *abadima* Ribbe 18892882 *Acraea abdera* Hewitson 18522884 *Acraea guillemei* Oberthür 1893

## Family: SATYRIDAE

## Subfamily: Biinae

## Tribe: Melanitini

2892 *Gnophodes chelys* (Fabricius 1793)2891 *Gnophodes betsimena* (Boisduval 1833) subsp. *parmeno* (Doubleday 1847)2894 *Melanitis leda* (Linnaeus 1758)

## Tribe: Mycalesini

2908 *Bicyclus sebutus* (Hewitson 1877)2915 *Bicyclus mandanes* (Hewitson 1873)2964 *Bicyclus safitza* (Westwood 1851)2968 *Bicyclus angulosus* (Butler 1868)2972 *Bicyclus taenias* (Hewitson 1877)

## MOTHS

## Family: SESIIDAE

One species unidentified, prob. *Synanthedon* sp.

## Family: ZYGAENIDAE

*Syringura triguttata* Holland 1893

## Family: PYRAUSTIDAE

## Subfamily: Pyraustinae

*Cnaphalocrocis (Marasmia) trapezalis* (Guenee 1854)*Chalcidoptera bilunalis* Hampson 1898*Thliptoceras xanthomeralis* Hampson 1918*Stemorrhages (Glyphodes) sericea* (Drury 1837)*Glyphodes* sp. in the *G. stortalis* complex*Palpita (Glyphodes) unionalis* (Hübner 1825)*Parotis (Glyphodes) baldersalis* (Walker 1859)*Parotis (Glyphodes) costulalis* (Strand 1912)*Nausinoë geometralis* (Guenee 1854)

## Subfamily: Nymphulinae

*Zebronia phenice* (Cramer 1782)

## Family: URANIIDAE

## Subfamily: Microniinae

*Micronia (Acropterus) albidiorata* (Mabille 1893)  
*Dissoprumna (Acropterus) erycinaria* (Guenee 1857)

## Family: GEOMETRIDAE

## Subfamily: Oenochrominae

*Aletis erici* Kirby 1896

## Family: EUPTEROTIDAE

## Subfamily: Janinae

*Jana eurymas* Herrich-Schäffer 1855*Hoplojana rhodoptera* (Stratäcker 1871)

## Family: THAUMETOPOEIDAE

*Anaphe* prob. *panda*

## Family: AGARISTIDAE

*Heraclia mons-lunensis* Hampson 1901 subsp. *neavi* ab. *signata*

## Family: ARCTIIDAE

## Subfamily: Arctiinae

*Argina amanda* (Boisduval 1847)



Family: HYPSIDAE  
*Phaegorista similis* Walker 1869  
*Phaegorista leucomelas* (Herrich-Schäffer 1858)

Family: NOCTUIDAE  
Subfamily: Catocalinae  
*Entomogramma pardus* Guenee 1852

*Calliodes appollina* Guenee 1852  
*Trichanua mejanesi* (Guenee 1858)  
*Achaea lienardi* (Boisduval 1833)  
*Achaea boris* (Geyer 1837)  
Subfamily: Ophiderinae  
*Sphingomorpha chlorea* (Cramer 1779)  
*Dermaleipa parallelipeda* (Guenee 1852)

## PROGRESS ON ATLAS OF RED DATA BOOK AND NATIONALLY SCARCE MACRO-MOTHS

by Paul Waring

*National Moth Review, 1366 Lincoln Road, Werrington, Peterborough PE4 6LS.*

A complete set of up-to-date national distribution maps for the current Red Data Book and Nationally Scarce Macro-moths has now been drafted, as proposed in *Ent. Rec.* **103**: 193-196 and referred to in *Bulletin* **51**: 144. Revised maps will be published by the Joint Nature Conservation Committee in the form of an Atlas in 1993 and work on text to accompany each map is now under way.

Any additional records for inclusion in the Atlas should be with me by the end of 1992 if possible and should be sent via the appropriate county recorders for vetting, preferably, or direct to me at the above address.

The notice in *Ent. Rec. (loc. cit.)* provided a suggested format for records. The important details are recorder's name, species seen, site name, six fig. grid ref. if possible, date, a rough indication of numbers seen and any indications of breeding, such as larvae. The rarer moths which are being mapped and a directory of county recorders can be obtained from me by sending a large (A4) SAE with a 50p stamp. The set of draft maps is too bulky to be sent out on an individual basis and I regret that I cannot enter into a lengthy correspondence. The county recorders and biological recording centres are better points of contact for local information on recording in your area and for help in checking identifications.

I would like to thank all the recorders who have sent information in to the network already. I would also like to thank the Biological Records Centre, Monks Wood, the Rothamsted Insect Survey and the Scottish Insect Record Index (SIRI) for supplying data to the project and the Joint Conservation Committee for their continuing support. In particular I thank Dr Stuart Ball for his work on the computer system used to handle the data. The distribution map was produced using the DMAP package developed by Dr Alan Morton at Imperial College, London.

## THE CLUB-TAILED DRAGONFLY, *GOMPHUS VULGATISSIMUS*, IN SHROPSHIRE

by Brian Mitchell (6068)

On a visit to Llanymnech Rocks (OS grid ref. SJ 2622), near the village of Pant on the Salop/Clywd border on 26th May 1992, while searching for a Small pearl-bordered among the Pearl-bordered fritillaries, my attention was drawn to a yellow and black dragonfly hawking along the path below the cliff where I was walking. I was not able to gain a good view but later I stumbled upon it again when it settled on a leaf in front of me, clasping a large-winged insect. I could see immediately that it was *Gomphus vulgatissimus*. I was able to take a number of photographs.

On returning home, I checked in the booklet *Dragonflies of Shropshire and their Distribution* by Stephen Butler (1982) but there were no records for that square. I contacted Shropshire Museum about this and recently I was informed by Jane E. Mee, Curator of Natural Sciences, that the Shropshire Biological Records Centre has no records for this species at Llanymnech Rocks and that, furthermore, Stephen Butler has confirmed that as far as he is aware there are no recent records for this species at that locality. The sighting was four tetrads further north and eight tetrads further west than the nearest record noted in the aforementioned 1982 booklet.

Llanymnech Rocks is perhaps a mile or so from the River Vyrnwy, a tributary of the River Severn.

## UNUSUAL FOODPLANT OF ELEPHANT HAWKMOTH

by Mark A. Hope (8139)

I have a small pond in my back garden and was surprised last year to find two Elephant hawkmoths (*Deilephila elpenor*) caterpillars feeding on marsh willowherb (*Epilobium palustre*) which was at the margins of the pond. I was surprised because there is a large stand of rosebay willowherb (*Epilobium angustifolium*), which is usually cited as its normal foodplant, only a few yards away. In spite of a thorough search I could find no signs of larvae on the rosebay willowherb. I would have thought that this would have afforded not only greater cover and camouflage, but also better feeding than the marsh willowherb which is very thin and straggly.

Even more surprising to me was the discovery this year of three Elephant hawk larvae at the verges of the pond (two of which were on the marsh willowherb) and a third feeding greedily on bogbean leaves (*Menyanthes trifoliata*). Although an unexpected foodplant, the larva was fully grown and obviously thriving on its unusual diet.

## INVERTEBRATE RECORDING IN THE ISLE OF MAN

by James Wright (9531)

32 Wythburn Crescent, Carr Hill, St Helens, Merseyside WA11 7HD.

Whilst not entirely coming under the subject of entomology, three recent surveys on the Isle of Man (August 1990, May 1990 and August 1991), by the author, have revealed a number of new vice-county records and these have made a significant increase to the vice-county list of one particular group — spiders.

The Isle of Man has considerable potential for invertebrate conservation. However, in order for conservation plans to be drawn up, more work on the recording of Mann's invertebrate populations, their habitats and ecologies, are of the utmost importance.

Already acknowledged, from previous work carried out by other entomologists and various other disciplines from the natural history fraternity, are a number of sites of both local and international importance. For instance, Langness is the only known site of the Lesser-mottled grasshopper, *Stenobothrus stigmaticus*, in the whole of the British Isles. The Ayres is a large stretch of lichen-heath, built on post-glacial deposits, whilst the Ballaugh Curraghs is an extensive area of prime wetland. Other areas are still to have their fauna and flora more fully surveyed, but will reveal, without doubt, equally important sites. I am of the opinion that Port Cornaa, for instance, is one such site and one that is certainly important from an invertebrate viewpoint.

Returning to spiders, if I may, then it has become obvious that this group is but an example of just how poorly-known some of the invertebrate groups are on Mann. In 1987 the provisional list for the spiders on Mann stood at just 117 species. It now stands at 179 species (30 of which have been added by the author in the past year), with still more of the so-called "common species" still missing. Compare this to the 630+ spiders that are known to inhabit the British Isles and it becomes apparent that there is still much to be done.

Apart from recording many "common species", which have thus far eluded collection, there are a number of species that have shown up to be either on, or beyond, what is considered to be their most northern limits. This applies equally to some of the insects and other invertebrates that have been taken along with spiders. The Isle of Man seems more certainly in need of further attention than it would appear to be getting and I suspect that there is much for the entomologist still to find out there.

Below I include a list of the species that I have added to the vice-county list in the past year. Though primarily concerned with spiders — for they

were the "target group" on my particular surveys — you will see that other groups are represented. I should stress that I only actually collected beetles, ants, centipedes, millepedes and woodlice, when I acquired them while looking for spiders. No special effort was made to look particularly for one kind of group — apart from spiders — so it may be presumed that if these groups were looked for in earnest, then even more might turn up.

## LIST OF SPECIES RECORDED

### ARANEAE (Spiders)

#### CLUBIONIDAE

*Clubiona stagnatilis* Kulczynski

*C. pallidula* (Clerck)

*C. phragmitis* C.L. Koch

*C. compta* C.L. Koch

#### PHILODROMIDAE

*Philodromus aureolus* (Clerck)

*P. cespitum* (Walckenaer)

*Tibellus maritimus* (Menge)

#### SALTICIDAE

*Euophrys lanigera* (Simon)

#### PISAUROIDAE

*Pisaura mirabilis* (Clerck)

#### THERIDIIDAE

*Theridion melanurum* Hahn

#### TETRAGNATHIDAE

*Tetragnatha montana* Simon

#### METIDAE

*Zygiella atrica* (C.L. Koch)

#### ARANEIDAE

*Larinioides cornutus* (Clerck)

#### LINYPHIIDAE

*Walckenaera nodosa* O.P.—Cambridge

*W. unicornis* O.P.—Cambridge

*Baryphyma trifrons* (O.P.—Cambridge)

*Pocadicnemis juncea* Locket & Millidge

*Oedothorax agrestis* (Blackwall)

*O. apicatus* (Blackwall)

*Silometopus ambiguus* (O.P.—Cambridge)

*Araeoncus crassiceps* (Westring)

*Microneta viaria* (Blackwall)

*Agyneta conigera* (O.P.—Cambridge)

*Bathyphantes approximatus* (O.P.—Cambridge)

*Kaestneria pullata* (O.P.—Cambridge)

*Floronia bucculenta* (Clerck)

*Lepthyphantes alacris* (Blackwall)

*L. tenebricola* (Wider)

*Linyphia (Nerlene) montana* (Clerck)

*L. (N.) peltata* (Wider)

#### OPILIONES (Harvestmen)

#### PHALANGIIDAE

##### Oligolophinae

*Paroligolophus agrestis* (Meade)

##### Phalanginae

*Opilio saxatilis* C.L. Koch

*Megabunus diadema* (Fabricius)

#### PSEUDOSCORPIONS (False-scorpions)

#### NEOBISIIDAE

*Neobisium muscorum* (Leach)

#### COLEOPTERA

#### CARABIDAE

*Bembidion aenum* Germar

#### SCIRTIDAE

*Cyphon coarctatus* Paykull

#### CANTHARIDAE

*Cantharis cryptica* Ashe

*C. rustica* Fallen

#### CURCULIONIDAE

*Phyllobius roboretanus* Gredler

#### HYMENOPTERA (Ants)

#### FORMICIDAE

*Lasius alienus* (Foerster)

#### ISOPODA (Woodlice)

#### ONISCIDAE

*Oniscus asellus occidentalis* Bilton

## COMMENTS

**SPIDERS:** *Euophrys lanigera* and *Floronia bucculenta* are more southern in their distribution, the latter being one of the more unusual Linyphiids in that it contracts the white areas on its dorsal abdomen when alarmed, dropping to the ground and virtually disappearing before your very eyes!

**HARVESTMEN:** *Megabunus diadema* has only previously been taken from off the Calf of Man, so is not a new v-c record as such. However, was found to be widespread over the mainland of Man.

**COLEOPTERA:** *Bembidion aenum* is likely to be of restricted distribution on Man. The two Cantharid beetles are new v-c records, but more importantly, *Cantharis figurata* Mannerheim was found extensively in the wetlands. It is a somewhat scarce soldier-beetle, normally only found on the fens of S.E. England, so it is a good indicator of the quality of Man's wetlands.

**FORMICIDAE:** *Lasius alienus* is a second most northerly record for this species in Great Britain (the first being at Galloway), so is on its known northern edge of distribution.

**ISOPODA:** *Oniscus asellus occidentalis* is a new sub-species of woodlice, and is being described as new to science, and this is the first record of it outside England. It was found in the wetlands on Man in company with its intermediate relatives *Oniscus asellus asellus* Linnaeus.

It is hoped that this small article will encourage other "like-minded fellows" — entomologists and arachnologists — to perhaps look towards the Isle of Man in a new light and perhaps put more of their effort into finding out just what the island has to offer. Whilst it is fine to "head south" and abroad for those species we would all like to record and see in their native environments, I can commend the Isle of Man as being of equal importance and also as a way of making a closer contribution to invertebrate recording leading to conservation strategies!

## ACKNOWLEDGEMENTS

I hereby acknowledge the assistance given by the Entomological Club in giving me a grant towards expenses for surveys on the Isle of Man in 1991, together with thanks to the Isle of Man Steam Packet Company for a free return voyage.

## VERRALL SUPPER

The Entomological Club organise the Verrall Supper in memory of a former member. It is held on the first Wednesday in March and invitations are sent to members who have subscribed in previous years. Those interested in attending in future should write to The Verrall Supper Secretary, Professor H.F. van Emden, Department of Horticulture, University of Reading, Earley Gate, Reading, Berkshire TG6 2AT.

## AN UNUSUAL CHOICE OF FOODPLANTS

by Tim Collins (4228)

One feature of insects that has maintained my interest in them for well over half of my life has been their adaptability. Thus, I was pleased to read the recent AES *Bulletin* articles on unusual foodplants (*Bulletin*, June 1991), and I have to confess that I, too, have observed divergences from the norm in lepidopterous larvae over recent years that have not fallen short of remarkable.

Take the immature Oak eggar (*Lasiocampa quercus*) for instance. It was with considerable elation that I found half-a-dozen larvae of this species in hedgerows near Exeter, Devon, in November 1990, whilst taking a short break there. Taking great care to get them home to Ealing, I then fed them on various types of rose, before stumbling across another bush whose leaves the larvae readily took to. These were those of the hugely-popular evergreen shrub of British gardens, *Viburnum tinus*. What began as an experiment became reality and I was then able to celebrate the emergence of six really fine adults as a result of this food change.

How many AES members have discovered Lime hawkmoth (*Mimas tiliae*) larvae on, of all things, Silver birch (*Betula pendula*)? I have! These I spotted in their third instar near Osterley in July 1991. The larvae had clearly benefitted from this broader-leaved variety of birch growing so happily on a south-facing slope on the flanks of a conservation area. But how does one account for this almost treacherous switch of nutrition? All the other larvae of this species found that summer had fed on the line itself.) Birch is quoted as a foodplant for this species in some of the books.— Editor.)

The larvae of the Magpie moth (*Abraxas grossulariata*) are well known for their unfussiness. So perhaps it isn't surprising that the larvae that I found in my parents' garden in Derbyshire had been exhibiting this impartiality in the Easter period this year. Yet, even then, I had to admit my amazement at locating them on a hitherto thriving clump of *Sedum spectabile*. So destructive were these caterpillars that my parents promptly ordered me to remove them. The thickness of the succulent leaves of this plant had proved not the slightest obstacle to this mob of some 30 individuals: my task was rendered all the more difficult owing to the habit some caterpillars had cultivated of hiding in the clematis growing up the shed against which this ice plant was beginning forcefully to grow! Such a strong draw for the garden's lepidoptera could stand no further damage, so I fed the larvae on *Prunus* leaves and released the adults a respectable number of miles from their birthplace.

All of which pales the attempts, in May of this year, of two female Holly blues (*Celastrina argiolus*) to lay eggs on *Pyracantha leylandii*, into insignificance! That was seen next to a very busy West London road!!

## AN IDENTIFICATION GUIDE TO RINGLET (*EREBIA*) BUTTERFLIES TO BE FOUND IN THE CENTRAL PYRENEES

by A. Wakeham-Dawson (9379)

Groveside, Heron's Ghyll, Uckfield, Sussex TN22 4BY.

Ringlet butterflies (Genus *Erebia*) are a closely-related sub-group of the sub-family Satyrinae. The adults of the different species are often difficult to tell apart by wing pattern alone and many of the larvae and their foodplants have not yet been described. Before visits to the Benasque Valley in the Spanish Central Pyrenees last spring (May 1991) and summer (July-August 1991), I prepared the following chart to help in the identification of the 14 species found in this region and to indicate the most productive habitats for finding these species. Information for this chart is drawn mainly from Higgins & Riley (1980) and it is reproduced on the next page.

I also prepared drawings of the valves of the male genitalia of these 14 species from those in Higgins (1975). These show considerable variation in structure between species and are a consistent and reliable method for detailed identification. Methods for preparing butterfly genitalia for microscope examination can be found in Cribb (1972) or Higgins (1975), see Fig. 1. I found seven of these species in the Benasque Valley (lowest altitude approximately 1,000m above sea level. These were: (3.) *E. gorge* (Silky); (4.) *E. epiphron* (Mountain); (6.) *E. triaria* (de Prunner's); (7.) *E. gorgone* (Gavarnie); (8.) *E. hispana* (Spanish brassy); (10.) *E. lefebvrei*; (12.) *E. meolans* (Piedmont).

Species number 6 above was found flying during May 1991 (see Wakeham-Dawson, 1992). This was replaced in the same habitat by species number 12 in July-August. Species 3, 4, 7, 8, 10, 12 were found flying only in July-August.















### REFERENCES

- Cribb, P.W. (1972). *An Amateur's Guide to the Study of the Genitalia of Lepidoptera*. AES leaflet No. 34.  
 Higgins, L.G. (1975). *The Classification of European Butterflies*. London.  
 Higgins, L.G. & Riley, N.D. (1980). *A field guide to the butterflies of Britain and Europe*. London, Collins.  
 Wakeham-Dawson, A. (1992). Spring Butterflies of the Spanish Central Pyrenees. *Bull. amat. Ent. Soc.* 51: 163-166.

## Altitude (metres)

English Name

Ringlets : *Erebia*

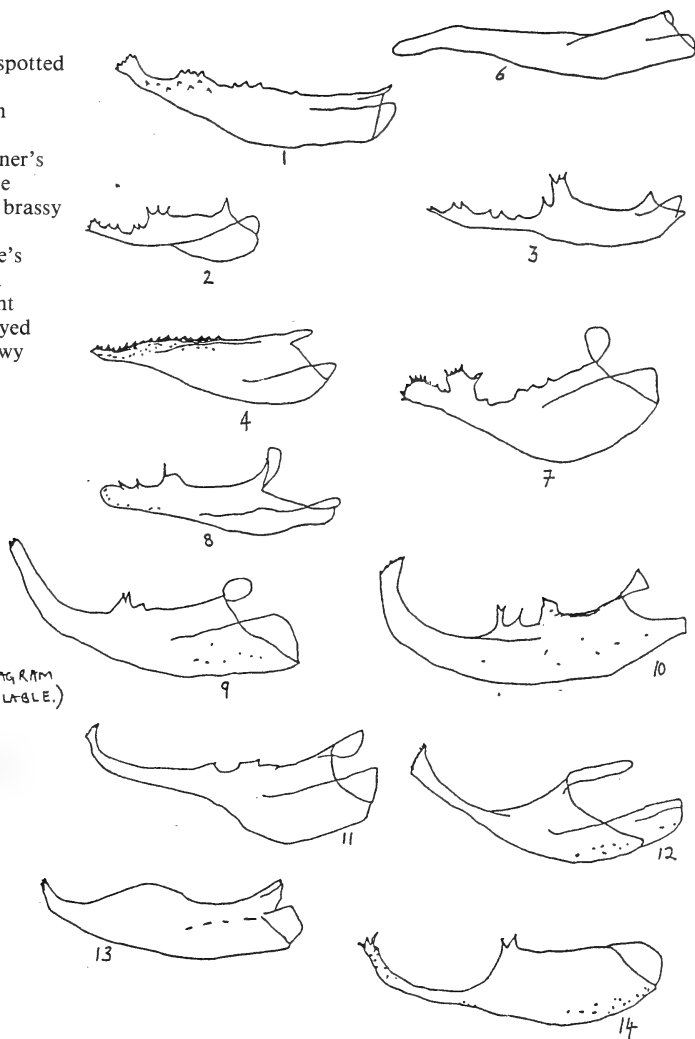
1. Large	<i>euryale euryale</i>	Grasses	July - August	In mountains among spruce	
2. Yellow Spotted	<i>manto constans</i>	?	July - August	Damp sub-alpine meadows	
3. Silky	<i>gorge ramondi</i>	Grasses	June - July	On rocky slopes & moraines in mountains	
4. Mountain	<i>epiphron aethria</i>	Grasses	July	On grassy slopes on mountains	
5. Decimon's	<i>serotina</i>	?	Sept	Cuencas in Hautes Pyrénées	 NB: no known females ever recorded only 20 male specimens and none seen for 20 years. Hybrid of <i>epiphron</i> & <i>promoe</i> ?
6. de Prunner's	<i>triaria triaria</i>	?	May - July	Grassy Slopes	
7. Gavarnie	<i>gorgone</i>	?	July - August	Grassy Slopes	
8. Spanish Brassy	<i>hispana rondoui</i>	?	July	Grassy Slopes	
9. Water	<i>promoe glottis</i>	Grasses	July - Sept	Woodland clearings & Damp Slopes	
10. Lefebvre's	<i>lefebvrei lefebvrei</i>	?	June - July	Moraines & Rocky Slopes	
11. Autumn	<i>neorides neorides</i>	?	August - Sept	Hills	
12. Piedmont	<i>meolans meolans</i>	Grasses	June - July	Stoney & Grassy Slopes	
13. Bright-eyed	<i>oeme oeme</i>	Woodrush (Luzula)	June - July	Wet meadows & Woodlands	
14. False dewy	<i>sibennyo</i>	?	June - July	Grassy Slopes	

HABITATS OF THE RINGLETS (GENUS *EREBIA*; FAMILY SATYRIDAE)  
OF THE SPANISH CENTRAL PYRENEES



1. Large
2. Yellow spotted
3. Silky
4. Montain
- 5.
6. de Prunner's
7. Gavarnie
8. Spanish brassy
9. Water
10. Lefèbvre's
11. Autumn
12. Piedmont
13. Bright-eyed
14. False dewy

5. (NO DIAGRAM  
AVAILABLE.)



NOT TO SCALE

Fig. 1. Valve structure of 14 species of *Erebia* (Ringlet) butterflies (after Higgins, 1975).

## SUBSCRIPTION REMINDER

Members are reminded that to ensure they receive their February 1993 *Bulletin* on time, their subscription should be with the Registrar by 31st January. Bulletins etc are not sent to non-payers.

## CLOUDED YELLOW INVASION

We have received reports that indicate that 1992 will be the greatest year on record for migration, not just of Clouded yellows (*Colias croceus*) but also of other noted migrants. One report, for instance, stated that the Essex coast was like being covered in snow as the Large cabbage whites arrived and they were so numerous as to appear on both television and in the papers. The Clouded yellows, however, instead of the usual pattern of coming in over the English Channel to the south coast, made a westerly and northerly entry and, as well as reports received from Wales and the Midlands, we have on hand an account of their abundance and distribution in both Ireland and Scotland (Ayrshire in particular) and these accounts will be published in a future *Bulletin*.

## CONVOLVULUS AND ELEPHANT HAWKMOTHS IN GLOUCESTERSHIRE

by Don McNamara (5537)

Whilst staying at Newham-on-Severn, a local naturalist, John Lusty, brought me a fresh adult of the Convolvulus hawkmoth (*Agrius convolvuli*) which he had found resting on a dry-stone wall on 16th September 1992. During August and September larvae of the Elephant hawkmoth (*Deilephila elpenor*) were quite common in the village and various people (with varying degrees of excitement and horror!) were bringing me the larvae, all of which were feeding on garden fuchsia plants.

## THE DELICATE, MYTHIMNA VITELLINA IN SLOUGH

by Roger Hayward (2769)

I am delighted to be able to report the capture of a male specimen of the Delicate, *Mythimna vitellina*, on the night of 18th/19th September 1992 in Slough, Berkshire. According to Sir Eric Anson's 1969 list of *The Macrolepidoptera of Buckinghamshire* (in which county Slough then was) there was only a single record from the county. I do not, however, know if there have been any subsequent recordings.

(John Gregory reports that Cornwall appears to have been invaded by them, but he has only managed to find males.— Ed.)

## THE MOTHS OF MEPAL

by Robert Partridge (8956)

11 New Road, Mepal, Ely, Cambridgeshire CB6 2AP.

Mepal is a small village of about 500 people, situated seven miles south-west of Ely in Cambridgeshire. The surrounding land is predominantly arable and some of the most intensively farmed in the country. The soil type in the village is a heavy loam with areas of clay; just to the west, the rich, black soils of the fens proper begin. The annual rainfall is low, with 22" per annum being typical.

Trees are at a premium in this landscape. In half-mile radius from the village centre there are fewer than thirty, widely scattered, mature oaks. The churchyard contains some old elms and nearby there is one small spinney of the same species, in an advanced state of decay. Single ash trees occur along field edges and older hedges have a few substantial field maples. Other hedgerow species include hawthorn, blackthorn, bramble and wild rose but many hedges are damaged annually by farming operations. Willow and sallow are found on the nearby Ouse Washes, which run along the western edge of the village. The washes are internationally important for their birdlife and also contain interesting plant species but I am not aware of any detailed entomological surveys of them.

Moving into the area about eighteen months ago coincided with a re-awakening interest in our larger moths. Collecting and recording has been periodic rather than systematic, using a Heath trap (since January 1991), sugar and searching for larvae. Many of the imago records come from the garden that looks out onto arable fields and hedgerows.

The order of the list is that used by Skinner in his text.

### HEPIALIDAE

Orange swift (*Hepialus sylvina*). A single came to light in early September 1991.

Common swift (*Hepialus lupulinus*). Abundant on all grassy sites in 1990 and 1991.

### LASIOCAMPIDAE

December moth (*Poecilocampa populi*). Five males came to light in November and December 1991.

The Lackey (*Malacosoma neustria*). Larvae often found on blackthorn in 1990 and 1991.

The Drinker (*Philudoria potatoaria*). The larvae were widespread on common reed in 1990 and 1991.

### DREPANIDAE

Oak hook-tip (*Drepana binaria*). One male came to light in September 1991. One of the more surprising records in view of the absence of woodland.

Chinese character (*Cilix glaucata*). Two came to light in May 1991.

*GEOMETRIDAE*

March moth (*Alsophila aescularia*). Good numbers to light throughout March 1991.

Blood-vein (*Timandra griseata*). One only, disturbed from bushes in 1990. Almost certainly overlooked in 1991.

Small dusty wave (*Idaea seriata*). One came to light in September 1991.

Red twin-spot carpet (*Xanthorhoe spadicearia*). Singles noted in 1990 and 1991, one at light, one beaten from nettles.

Silver ground carpet (*Xanthorhoe montanata montanata*). Common in several areas in 1990; a few only in 1991.

Garden carpet (*Xanthorhoe fluctuata*). Came to light in good numbers in 1990 and 1991.

Yellow shell (*Camptogramma bilineata bilineata*). One netted on 31.5.90; two others noted that season but not recorded in 1991.

The Mallow (*Larentia clavaria*). One to light in September 1990; up to five at a time in the 1991 season.

Shoulder stripe (*Anticlea badiata*). One came to light in April 1991.

The Streamer (*Anticlea derivata*). One to light in April 1991.

Scarce tissue (*Rheumaptera cervinalis*). A fresh specimen was netted over the trap on 11.4.91. Nearby gardens contain a variety of cultivated berberis species.

Winter moth (*Operophtera brumata*). Numerous to light in 1990 and 1991. Numbers of these had uniformly grey forewings without visible banding.

Mottled pug (*Eupithecia exiguata exiguata*). A few seen in 1990 and 1991.

Lime-speck pug (*Eupithecia centaureata*). Four were trapped in 1990; two in 1991.

Common pug (*Eupithecia vulgata vulgata*). Came regularly to light in both 1990 and 1991.

Green pug (*Chloroclystis rectangulata*). A single came to light on 23.5.91.

Brimstone moth (*Opisthoptis luteolata*). Several came to light in May 1991.

August thorn (*Ennomos quercinaria*). One only, found in a waterbutt in September 1991.

Canary-shouldered thorn (*Ennomos alniaria*). Recorded twice in 1990; appeared regularly at three sites in 1991.

Early thorn (*Selenia dentaria*). Three came to light on 12.4.91.

Pale brindled beauty (*Apocheima pilosaria*). A single specimen at light on 17.1.91 was the only moth taken that month despite a mild spell of several days.

Brindled beauty (*Lycia hirtaria*). Appeared frequently in the trap from 9.4.91 to 11.5.91.

Scarce umber (*Agriopis aurantiaria*). Two came to light at the end of November 1991.

Dotted border (*Agriopis marginaria*). First taken 13.3.91. Singles appeared occasionally until the end of April.

Mottled umber (*Erannis defoliaria*). A single in the light trap on 30.12.91.

Waved umber (*Menophra abruptaria*). One only, to light on 23.5.91.

*SPHINGIDAE*

Privet hawkmoth (*Sphinx ligustri*). The hawk frequently seen in 1990 and 1991. It

appeared regularly in the trap and several groups of larvae were found, including some feeding on ash.

Lime hawkmoth (*Mimas tiliae*). A single adult only, found at rest on a tree trunk in June 1991.

Eyed hawkmoth (*Smerinthus ocellata*). Several trapped in 1991. One female laid a number of eggs and 25 larvae were reared to the pupal stage.

Poplar hawkmoth (*Laothoe populi*). Several came to light in May and June 1991.

Hummingbird hawkmoth (*Macroglossum stellatarum*). One visited the flower garden in 1991.

Elephant hawkmoth (*Deilephila elpenor*). Four were trapped in 1990; two in 1991.

Greater willowherb is a common plant along the damper dykes in the area.

Small elephant hawkmoth (*Deilephila porcellus*). A single specimen to light in June 1991. Lady's bedstraw grows along some roadside verges.

### NOTODONTIDAE

Buff-tip (*Phalera bucephala*). Larvae noted on willow in September 1991.

Puss moth (*Cerura vinula*). First taken at light on 10.5.91. Several more followed, all males.

Pebble prominent (*Eligmodonta ziczac*). Four were seen at light in May 1991.

Swallow prominent (*Pterostoma palpina*). The commonest prominent in 1991. First appearing on 13.4.91, a good number were taken in the following month.

Chocolate-tip (*Clostera curtula*). A single came to light on 11.5.91.

Figure of eight (*Diloba caeruleocephala*). Two only, both on 12.10.91, despite the trap being run frequently during this month.

### ARCTIIDAE

Muslin moth (*Diaphora mendica*). A number of males came to light in May 1991.

The Cinnabar (*Tyria jacobaeae*). Singles seen in 1990 and 1991. Said to be common on the nearby Ouse Washes.

### NOCTUIDAE

Turnip moth (*Agrotis segetum*). A single specimen came to light late in May 1991.

Heart and dart (*Agrotis exclamationis*). Numerous to light and sugar in 1991.

Dark sword-grass (*Agrotis ipsilon*). One came to sugar on 21.9.90 during a week when other migrant species were taken in the same way.

Shuttle-shaped dart (*Agrotis puta puta*). Five came to light during May 1991.

Dotted rustic (*Rhyacia simulans*). One fresh specimen in the light trap, 20.9.91.

Large yellow underwing (*Noctua pronuba*). Common to sugar and to light in 1990 and 1991.

Lesser yellow underwing (*Noctua comes*). Common in 1990 and 1991, especially to sugar.

Pearly underwing (*Peridroma saucia*). Three came to sugar over two nights, 27/28.9.90.

Small square-spot (*Diarsia rubi*). One taken at light, 13.9.91.

Setaceous Hebrew character (*Xestia c-nigrum*). Abundant in the second flight period in both 1990 and 1991.

Square-spot rustic (*Xestia xanthographa*). Common in 1990; abundant in 1991.

Red chestnut (*Cerastis rubricosa*). Appeared regularly from 5.9.91 in small numbers.

The Nutmeg (*Discestra trifolii*). Regular in ones and twos from 11.5.91.

Cabbage moth (*Mamestra brassicae*). Found at sugar from June onwards in 1990 and 1991.

The Lychnis (*Hadena bicruris*). One specimen to light, 23.5.91.

Small quaker (*Orthosia cruda*). Four to light during April 1991, all rather worn.

Powdered quaker (*Orthosia gracilis*). Five were taken in the trap during early May 1991.

Common quaker (*Orthosia stabilis*). Abundant in both years; invariably the top scorer in the trap during its season.

Clouded drab (*Orthosia incerta*). Common in 1990 and 1991 with a wide range of colour forms seen.

Hebrew character (*Orthosia gothica*). First appeared on 15.3.91. Common throughout the flight period.

Common wainscot (*Mythimna pallens*). Came to sugar, often in good numbers, in 1990 and 1991. A number tended towards ab. *ectypa*.

Deep-brown dart (*Aporophyla luteolata*). Two in 1991; one to light, 25.9.91, one to sugar, 7.10.91.

Tawny pinion (*Lithophane semibrunnea*). Not seen in 1990. Six recorded at sugar in early October 1991.

Grey shoulder-knot (*Lithophane ornitopus lactipennis*). A single in October 1990; two in March 1991; four in October 1991 — all to sugar.

Blair's shoulder-knot (*Lithophane leautieri hesperica*). First specimen in the trap 25.9.91; thereafter taken in numbers, up to ten per night. Four worn specimens taken on 28.11.91; two to light, two to sugar.

Early grey (*Xylocampa areola*). First seen at light 17.3.91. Common from then onwards, with up to twenty per night trapped.

Green-brindled crescent (*Allophyes oxycanthae*). None in 1990; three to sugar in early October 1991.

Large ranunculus (*Polymixis flavicincta*). Several came to light and sugar in 1990 and 1991.

The Satellite (*Eupsilia transversa*). A single in the trap on 23.11.91 was the only moth taken.

The Chestnut (*Conistra vaccinii*). Not common; a few records scattered through the flight period 90/91.

The Brick (*Agrochola circellaris*). Only two, at sugar, 7.10.91.

Red-line quaker (*Agrochola lota*). Regular to light and sugar in 1990 and 1991; latest date 30.11.91.

Brown-spot pinion (*Agrochola litura*). One only in 1990; common to sugar in 1991.

Beaded chestnut (*Agrochola lychnidis*). Abundant in 1990 and 1991 with many colour forms noted.

Centre-barred sallow (*Atethmia centrago*). One only, to light, 7.9.91.

Lunar underwing (*Omphaloscelis lunosa*). Common in both 1990 and 1991.

The Sallow (*Xanthia icteritia*). Common to light and sugar. Specimens approaching ab. *flavescens* recorded several times.

The Sycamore (*Acronicta aceris*). One to light 23.5.91; the lower half of the forewing was suffused with dark grey.

Grey dagger (*Acronicta psi*). Larva found on garden plum tree in early October 1991.

Mouse moth (*Amphipyra tragopoginis*). Not seen in 1990; several came to light in September 1991.

Angle shades (*Phlogophora meticulosa*). Common in 1990; abundant to sugar in 1991. A fresh specimen came to light on 27.11.91.

Dark arches (*Apamea monoglypha*). Regular to light in June and July 1991.

Small clouded brindle (*Apamea unanimitis*). Two only, to sugar, 31.5.90.

Marbled minor (*Oligia strigilis*). Several to sugar in 1990 and 1991 (I.D. on wing characters only).

Middle-barred minor (*Oligia fasciuncula*). Regular to sugar in 1990 and 1991 (I.D. on wing characters only).

Rosy rustic (*Hydraecia micacea*). Common to light in 1990 and 1991. A full range of size variation was seen.

Frosted orange (*Gortina flavago*). Three came to light in September 1991.

Bulrush wainscot (*Nonagria typhae*). One worn individual came to light on 13.9.91.

Large wainscot (*Rhizedra lutosa*). Ten taken at light during 1991.

The Uncertain (*Hoplodrina alsines*). One only, to light, 13.5.91.

Vine's rustic (*Hoplodrina ambigua*). One taken at sugar, 11.9.91.

Pale mottled willow (*Caradrina clavipalpis*). Common in 1990 and 1991.

Burnished brass (*Diachrysia chrysitis*). Two in the light trap 7.9.91; one had a complete forewing band, the other incomplete.

Silver-Y (*Autographa gamma*). Abundant in late summer 1990 and 1991; a fresh specimen was found in the trap on 1.12.91.

Red underwing (*Catocala nupta*). Good numbers came to sugar in both 1990 and 1991.

## SUMMARY

A number of our most ubiquitous species are missing from the list and I anticipate that many of them will be discovered in the next season or two. It is also obvious that changes in collecting methods between the two seasons have affected the results; more species were recorded once the Heath trap was operated but correspondingly less time was spent tapping bushes or netting at dusk, so fewer small geometers were seen. The value of using sugar as well as a light is evident in these records.

Despite the small number of trees in the area, it is clear that several "woodland" species are well-established, if only at low densities. It would be interesting to know just how important individual trees may be in these circumstances.

Overall, I have been pleased by the variety of species seen so far and I'm certain there are more surprises to come; the Cambridgeshire fens are not quite the desert that they first seemed. I would be interested to hear from anyone who is recording in the area or who has done so in the past.

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Skinner, Bernard (1984). *Colour Identification Guide to the Moths of the British Isles*. Viking, London.

## BOOK REVIEW

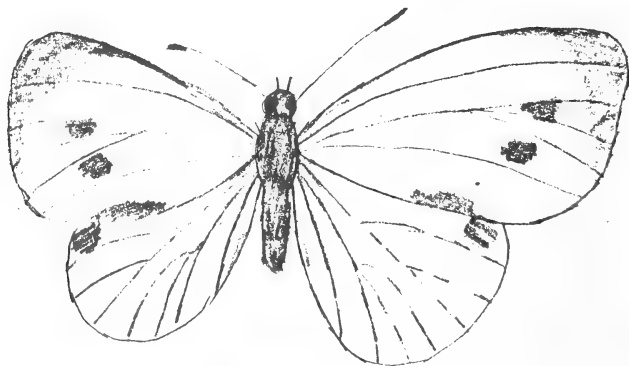
*The Butterfly* by Maria M. Mudd & Wendy Smith-Griswold. 4to, hardback, unpaginated, mobiles and coloured illustrations. Stewart, Tabori & Chang, New York 1991. ISBN 1-55670-219-1. Price £6.99 (US\$12.95).

Definitely a butterfly book with a difference, being one of a series described as "A Dimensional Nature Portfolio", which indeed it is, or, in English terminology, a "Pop-up" book. When first opened, up pops a large Milkweed butterfly with wings flapping and seen to be feeding on the flowers of its larval foodplant, milkweed. To each side of the then opened full page spread are "half-pages" which when turned over reveal, to the left, more pop-up mobiles of the Milkweed butterfly together with illustrations and a brief account of butterflies in general and the life-history of the Milkweed in particular. On the right we have a couple more mobiles and more information on butterflies, this side dealing with hibernation, migration, enemies and survival and a bit of folklore concerning them. Illustrated are a couple of dozen tropical species.

A book designed to attract the interest of the younger child, most of whom I am sure will damage some of the mobiles, as has happened to nearly all pop-up books, so let them digest it under supervision, for such books as this are greatly sort after by collectors of the genre.

I should like to thank Mrs Val Jones for bringing this book to my attention, for I have yet to see it in any of the many bookshops I frequent or catalogues I so avidly study.

Brian Gardiner



The Large white butterfly, *Pieris brassicae*, sketched by Jennifer Johnstone (9214J).





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## CORRIGENDA

On Plate D (page 25) the legends for Figs. 2 & 3 should be transposed.

On page 116, under "Distribution," for *Melitaea didyma occidentalis* (European), delete NA; for *M.d.o.* (N. Africa) delete SE.

On page 117 the entries under "Distribution," were accidentally all misplaced and a replacement page accompanying these index pages.

On page 199 a mis-placed negative resulted in poor reproduction of the illustrations and a replacement page was issued with the December issue.

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